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ABSTRACT

This volume analyzes existing and proposed correctional industries in Connecticut. First, the results of a survey made to determine the potential inmate work force for prison industry are presented as inmate profiles, descriptions of inmate and supervisor attitudes, and analyses of parolees' employment and recidivism rates. In part 2, four industries (print shop, dental laboratory, typewriter repair, and furniture upholstery) already operating at the Somers Correctional Institution are studied by means of job market and sales market surveys, and, for each shop, a review of marketing and manpower scheduling and a profit analysis. Then, of six new industries (microfilming, metal products, musical instrument repair, bakery products, data processing, and solar energy products) proposed for Somers, the first four are found to be suitable based on job market forecasts, profitability, and financial and manpower resources at the prison. Part 4 evaluates Connecticut's offender-based information system and makes recommendations for its improvement. The final section specifies the three dimensions (institutional operations, prison industry operations, and inmate postrelease outcome) upon which the evaluation of the Free Venture Model Prison Industry Program (described in CE 017 288) will be based. Appendixes include (1) copies of the inmate questionnaire, the inmate profile data sheet, monthly follow-up instrument, employer questionnaire, and forms for parolees' evaluation of prison industries; (2) a description of the cost elements of the criminal justice process; and (3) the industry production analysis package for Somers. (Author/ELG)

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## Study of the Economic and Rehabilitative Aspects of Prison Industry

# Technical Tasks and Results

U.S. DEPARTMENT OF HEALTH,
EDUCATION & WELFARE
NATIONAL INSTITUTE OF
EDUCATION

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CE 017 279

**National Institute of Law Enforcement and Criminal Justice**
Law Enforcement Assistance Administration
U. S. Department of Justice

Study of the Economic and Rehabilitative Aspects of Prison Industry

# Technical Tasks and Results

June 1978

**National Institute of Law Enforcement and Criminal Justice**
Law Enforcement Assistance Administration
U. S. Department of Justice

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National Institute of Law Enforcement
and Criminal Justice
Blair G. Ewing, Acting Director

Law Enforcement Assistance Administration
James M. H. Gregg, Acting Administrator

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ABSTRACT: The volume analyzes existing and proposed correctional industries in Connecticut. As a step toward developing a model program for a self-sufficient prison industry, a survey was made to determine the potential inmate work force for prison industry in Connecticut, and measures were developed to assess the impact of prison industry on this inmate population. Survey results are presented in the form of inmate profiles, descriptions of inmate and supervisor attitudes, and analyses of parolees' employment and recidivism rates. Four industries already operating at the Somers Correctional Institution were also studied. Data on these industries (print shop, dental laboratory, typewriter repair, and furniture upholstery) include results of job market surveys, sales market surveys, a review of marketing and manpower scheduling in each shop, and an analysis of each shop's potential profitability. Production statistics are presented in tables. Four new industries (microfilming, metal products, musical instrument repair, and bakery products) are proposed as suitable for establishment at Somers. The criteria employed in selecting these industries are discussed and the necessary capital and manpower resources are analyzed, together with job market forecasts. A proposed mode of operations is detailed. This volume also offers an evaluation of Connecticut's existing offender-based information system and makes recommendations for its improvement. The final section defines the proposed measures for evaluation of the Free Venture Model Prison Industry Program (described in a separate volume), and specifies the three dimensions (institutional operations, prison industry operations, and inmate postrelease outcome) upon which the evaluation will be based. Results of the pretest of the evaluation instruments are reported. Appendixes include: (1) a copy of the inmate questionnaire; (2) a description of the cost elements involved in criminal justice processing; (3) copies of the inmate profile data sheet, monthly followup instrument, employer questionnaire, and forms for parolees' evaluation of the prison industries; and (4) the industry production analysis package.

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ECON, Inc.

Russell R. Barton
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Robert J. Christie
Margo Donaldson
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Mary Hackler
William Parker

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Ernest Goldsborough
William H. Nagel
Jack Schaler
George Sexton

Consultants

Carey Curtis
Enrique Furth
Jeffrey Luftig
Thomas Wilson

# I. SURVEYS OF CORRECTIONAL SYSTEM STAFF, INMATES AND PAROLEES

In order to develop a successful model prison industry program, it is necessary to take into consideration the characteristics of the potential prison industry work force and to develop a scheme to measure the impact of the prison industry on this inmate population. Thus, there are two distinct steps involved. One is to survey the staff and the inmate population in order to determine if a model prison industries program is a viable project in the existing prison environment. The other is to survey the parolees to determine how to measure the impact of prison industries on post release performance. This, in turn, also provides a base line corresponding to the existing prison industry program against which the impact of proposed model industries can be compared. These two surveys have been conducted and are discussed separately.

## A. Inmate Profile

The staff and inmate survey has been conducted at Connecticut's four major correctional institutions. From this survey, broad profiles of the inmate population and their prison environment have been constructed to guide the selection of the type of industry program most appropriate for Connecticut's prisons.

The survey included specific topics of interest in the following areas:

1. Inmate characteristics - personal, educational background, job skills and achievements.
2. Inmate vocational aspirations and attitudes toward present prison industry shops.
3. Administrator and supervisor attitudes toward prison industries.

In the sections of the report which follow, the salient results of the survey in the three areas above are summarized and discussed. The summaries focus in general on the long-term inmates at Somers. The survey instruments and question-by-question tabulations are given for reference in the appendices.

1. Sample Survey of Inmate Characteristics

A sample survey of inmates was conducted in Connecticut's four state prisons: Somers, Enfield, Cheshire and Niantic. At each of these four prisons, a random sample of 50 inmates was selected and the prison record of each inmate in the sample examined for data necessary to complete the survey questionnaires.

The random samples at the four prisons were selected as follows:

Somers - Stratified sampling was employed to ensure equal numbers of long-term inmates and short-term inmates in the sample. The first stratum was composed of inmates with minimum sentences in excess of two years, and the second stratum of inmates having sentences of less than two years. The two strata in the sample were filled by first randomly selecting an inmate folder with the aid of a random number table, and then selecting every eighteenth succeeding folder until the desired 25 inmate folders were obtained for each stratum.

Enfield - A stratified random sample was taken to obtain 25 inmates with minimum sentences exceeding two years and 25 inmates with minimum sentences less than two years. The inmates in the sample were selected from a random list provided by the Central Office Research Department.

Niantic - A sample of 50 inmates was obtained from the files with the aid of a random number table.

Cheshire - A sample of 50 inmates was obtained from a Research Department random list and by randomly selecting from the prison population.

The prison records of inmates in the survey sample were examined and the following personal characteristics of each inmate were recorded:

1. Age;
2. Racial/ethnic group - white, Black, or Spanish-American;
3. Marital status - single, married or divorced/separated/widowed.

4. Number of dependents;
5. I.Q. level - inferior, low, average, high (Somers and Enfield only);
6. Highest grade of formal education completed;
7. College aptitude test scores - reading, mathematics, language and composite (Somers and Enfield only);
8. Type of prior employment - professional/managerial, clerical/sales, skilled/semiskilled, service, labor or none;
9. Whether employed at time of arrest;
10. Place of residence at time of arrest - Hartford, New Haven, Bridgeport, other urban or other nonurban;
11. Offense committed - "hard core" (murder, rape, burglary, robbery, assault) or "not hard core";
12. Types of previous convictions for "hard core" and "not hard core" offenses;
13. Number of previous convictions - 0, 1 or 2, 3 or 4, 5 or 6, 7 or more.
14. Age at first conviction;
15. Minimum and maximum sentences (Somers and Enfield only);
16. Number of months until eligible for parole;
17. Total months served in all prisons;
18. Number of disciplinary reports received;

19. Institutional assignment - work, school, vocational, other.

### 2. Focus of Discussion in the Inmate Survey

The primary objective of the inmate survey was to characterize the potential work force for a model prison industry program. As the model industries program in Connecticut will begin at Somers and will be limited to those inmates having at least fifteen months of time to serve (after good time allowances), the discussion of the survey results will concentrate on the Somers long-term inmate. A profile will be developed for the long-termers at Somers and their personal characteristics will be contrasted with the characteristics of the other inmates in the survey.

### 3. Inmate Characteristics Results

The personal characteristics of the two hundred inmates in the sample survey from the four prisons were tabulated and results are given in Table I-1. From the tabulations, important characteristics of the long-termers at Somers emerge to define a profile for this inmate population; some of these characteristics are statistically significantly different (at a 95 percent level of confidence) from the characteristics of the other Somers inmates and the Enfield inmates. These salient results from the sample survey of Somers and Enfield inmates are discussed with respect to their impact on the model prison industry program.

# Table I-1 Inmate Characteristics at the Four Prisons

**INMATE PROFILE**

**WEIGHTED AVERAGES FROM**

**FOUR CORRECTIONAL INSTITUTIONS**

| PROFILE CATEGORIES | STATE AVERAGE | SOMERS SHORT TERM | SOMERS LONG TERM | SOMERS WEIGHTED TOTAL | ENFIELD SHORT TERM | ENFIELD LONG TERM | ENFIELD WEIGHTED TOTAL | CHESHIRE AVERAGE | NIANTIC AVERAGE |
|---|---|---|---|---|---|---|---|---|---|
| Average Age | 25.5 | 25.6 | 28 | 27.1 | 26.5 | 29.5 | 28.2 | 18.7 | 26 |
| Racial/Ethnic Groupings: | | | | | | | | | |
| % White | 45 | 56 | 40 | 46 | 36 | 20 | 27 | 58 | 45 |
| % Black | 45 | 36 | 52 | 46 | 56 | 60 | 58 | 28 | 48 |
| % Spanish-American | 10 | 8 | 8 | 8 | 8 | 20 | 15 | 10 | 7 |
| Marital Status: | | | | | | | | | |
| % Single | 57 | 52 | 48 | 50 | 60 | 50 | 54 | 92 | 17 |
| % Married | 25 | 24 | 32 | 29 | 12 | 34 | 25 | 6 | 53 |
| % Div./Sep./Widowed | 18 | 24 | 20 | 21 | 28 | 16 | 21 | 0 | 30 |
| Average No. of Dependents | .8 | 1.2 | 1.1 | 1.1 | 1.0 | .5 | .72 | .1 | 1.0 |
| I.Q. Level: | | | | | | | | | |
| % Inferior | | 8 | 20 | 16 | 16 | 20 | 18 | | |
| % Low | | 40 | 24 | 30 | 16 | 36 | 28 | | |
| % Average | | 32 | 28 | 29 | 52 | 28 | 38 | | |
| % High | | 4 | 24 | 17 | 12 | 12 | 12 | | |
| % Unknown | | 16 | 4 | 8 | 4 | 4 | 4 | | |
| Median Grade Formal Education Completed | 9.3 | 9 | 9 | 9 | 10 | 10 | 10 | 9 | 10 |
| Median C.A.T. Scores: | | | | | | | | | |
| Reading | | 7.8 | 6.6 | 7.1 | 8.2 | 6.8 | 7.4 | | |
| Math | | 7.5 | 6.9 | 7.1 | 7.6 | 7.2 | 7.4 | | |
| Language | | 7.8 | 6.6 | 7.1 | 8.0 | 7.0 | 7.4 | | |
| Composite | | 7.8 | 6.6 | 7.1 | 8.1 | 7.0 | 7.5 | | |
| Prior Employment Classification: | | | | | | | | | |
| % Professional/ Managerial | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| % Clerical/Sales | 2 | 0 | 0 | 0 | 4 | 4 | 4 | 2 | 4.3 |
| % Skilled/Semi-Skilled | 14 | 20 | 20 | 20 | 12 | 20 | 17 | 0 | 4.3 |
| % Service | 11 | 8 | 8 | 8 | 12 | 16 | 14 | 10 | 27.7 |
| % Labor | 45 | 44 | 52 | 49 | 64 | 48 | 55 | 14 | 23.4 |
| % None | 21 | 24 | 20 | 20 | 8 | 12 | 10 | 28 | 31.9 |
| % Unknown | 7 | 4 | 0 | 1 | 0 | 0 | 0 | 26 | 8.4 |

## Table I-1 Inmate Characteristics at the Four Prisons (Continued)

INMATE PROFILE

WEIGHTED AVERAGES FROM

FOUR CORRECTIONAL INSTITUTIONS

|  |  | SOMERS |  |  | ENFIELD |  |  | CHESHIRE | NIANTIC |
|---|---|---|---|---|---|---|---|---|---|
| PROFILE CATEGORIES | STATE AVERAGE | SHORT TERM | LONG TERM | WEIGHTED TOTAL | SHORT TERM | LONG TERM | WEIGHTED TOTAL | AVERAGE | AVERAGE |
| Employed at Arrest: |  |  |  |  |  |  |  |  |  |
| % Yes | 17 | 25 | 18.2 | 21 | 12 | 24 | 19 | 10 | 10.6 |
| % No | 70 | 75 | 81.8 | 79 | 80 | 44 | 59 | 54 | 76.6 |
| % Unknown | 13 | 0 | 0 | 0 | 8 | 12 | 22 | 36 | 12.8 |
| Residence at Arrest: |  |  |  |  |  |  |  |  |  |
| % Hartford | 19 | 28 | 12 | 18 | 40 | 24 | 31 | 14 | 12.8 |
| % New Haven | 10 | 0 | 16 | 10 | 4 | 8 | 6 | 10 | 14.9 |
| % Bridgeport | 11 | 12 | 8 | 9 | 4 | 24 | 15 | 12 | 17.0 |
| % Other Urban | 42 | 40 | 44 | 43 | 40 | 32 | 36 | 44 | 42.6 |
| % Non-Urban | 17 | 20 | 20 | 20 | 8 | 8 | 8 | 20 | 10.6 |
| % Unknown | 1 | 0 | 0 | 0 | 4 | 4 | 4 | 0 | 2.1 |
| Offense: |  |  |  |  |  |  |  |  |  |
| % "Hard Core"* | 64 | 60 | 68 | 65 | 72 | 52 | 61 | 68 | 55 |
| % Other | 36 | 40 | 32 | 35 | 28 | 48 | 39 | 32 | 45 |
| Previous Convictions: |  |  |  |  |  |  |  |  |  |
| % "Hard Core" | 44 | 48 | 52 | 50 | 72 | 52 | 61 | 26 | 10.6 |
| % Other | 51 | 52 | 48 | 50 | 28 | 48 | 39 | 56 | 80.9 |
| % Unknown | 5 |  |  |  |  |  |  | 18 | 0 |
| Number of Previous Convictions: |  |  |  |  |  |  |  |  |  |
| % 0 | 12 | 0 | 8 | 5 | 4 | 24 | 15 | 24 | 21.3 |
| % 1-2 | 35 | 24 | 36 | 32 | 12 | 44 | 30 | 48 | 31.9 |
| % 3-4 | 22 | 40 | 20 | 27 | 48 | 8 | 25 | 8 | 21.3 |
| % 5-6 | 10 | 16 | 12 | 13 | 16 | 8 | 12 | 4 | 4.2 |
| % 7+ | 15 | 20 | 24 | 21 | 20 | 8 | 13 | 0 | 4.2 |
| % Unknown | 6 | 0 | 0 | 0 | 0 | 8 | 5 | 16 | 17.0 |
| Average Age at First Conviction | 19 | 18.6 | 18.[illegible] | 18.5 | 18.4 | 20.9 | 19.8 | 16.7 | 21.1 |
| Average Sentence Minimum Years |  | 1.7 | 5 | 1.8 | 1.5 | 4 | 2.9 |  |  |
| Average Sentence Maximum Years |  | 4.2 | 10.1 | 8.0 | 4.1 | 8.1 | 6.4 |  |  |
| Average Months Served as of Survey Date |  | 7.9 | 26.8 | 19.8 | 11.1 | 31.8 | 21.0 |  |  |
| Average Months to Parole Elig. |  | 8.5 | 33.0 | 23.9 | 4.1 | 18.5 | 1[illegible].4 |  |  |

## Table I-1 Inmate Characteristics at the Four Prisons (Continued)

INMATE PROFILE

WEIGHTED AVERAGES FROM

FOUR CORRECTIONAL INSTITUTIONS

|  |  | SOMERS |  |  | ENFIELD |  |  | CHESHIRE | NIANTIC |
|---|---|---|---|---|---|---|---|---|---|
| PROFILE CATEGORIES | STATE AVERAGE | SHORT TERM | LONG TERM | WEIGHTED TOTAL | SHORT TERM | LONG TERM | WEIGHTED TOTAL | AVERAGE | AVERAGE |
| Average Total Months Served in all Prisons |  | 28.5 | 49.4 | 41.7 | 36.5 | 53.9 | 46.4 |  |  |
| Average Disciplinary Reports Per Inmate | 1.26 | 1.6 | 1.6 | 1.6 | .4 | .8 | .6 | 1.1 | 1.3 |
| % of Inmates Without Reports | 54 | 44 | 44 | 44 | 80 | 48 | 62 | 64 | 64.9 |
| Institutional Assignments:* |  |  |  |  |  |  |  |  |  |
| % Work | 73 | 60 | 76 | 70 | 80 | 76 | 78 | 76 | 74.5 |
| % School | 18 | 16 | 12 | 13 | 8 | 16 | 13 | 26 | 40.4 |
| % Vocational | 10 | 4 | 0 | 1 | 24 | 24 | 24 | 12 | 21.3 |
| % Other | 10 | 0 | 8 | 5 | 0 | 0 | 0 | 30 | 17.0 |
| % Unknown | 7 | 20 | 4 | 10 | 0 | 0 | 0 | 10 | 4.3 |

*Percentages may add to greater than 100 percent since an inmate can be a member of more than one group, e.g., work and a vocational training assignment at the same time.

## Profile of the Somers Long-Termer

- Personal Characteristics - The Somers long-termer is in his late twenties, slightly more likely to be black than white, single, from an urban environment, in prison for a "hard core" offense[1] and has previous "hard core" convictions. He is serving five to ten years, has 33 months until he is eligible for parole and has been given at least one and possibly two disciplinary reports.
- Educational Background - The Somers long-termer has completed nine years of formal education. He has a below average scholastic aptitude, but this characteristic has no relationship to his I.Q. level. It is unusual that the I.Q. levels of this inmate population are almost uniformly distributed.
- Job Skills and Achievement - The Somers long-termer was very likely to be unemployed at the time of his arrest. However, when employed he was most likely to be classified as a laborer, although some Somers long-termers were classified in the skilled/semi-skilled category.

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[1] By hard core offense we mean murder, rape, burglary, robbery and assault.

## Significant Differences Between Somers Long-Termers and Other Somers and Enfield Inmates

- Among long-termers, there are twice as many whites at Somers as at Enfield, and over twice as many Spanish-Americans at Enfield as at Somers. While there are many long-termers with high I.Q.'s, there are also many long-termers with inferior I.Q.'s. On the other hand, over two-thirds of the short-termers have either a low or average I.Q. The Somers long-termers have lower scholastic skills than any of the other Somers or Enfield inmates. The long-termers and Somers short-termers were over 80 percent unemployed when arrested, while the Enfield short-termers were 44 percent unemployed.

  The Somers long-termer will be more likely to have been convicted of a "hard core" offense and have a history of "hard core" offenses than the Enfield short-termer. The Somers long-termer is likely to have more previous convictions and more disciplinary reports than the Enfield long-termer.

- In terms of educational background, job skills and achievements, the Somers long-termer is not significantly different from the other Somers and Enfield inmates.

### 4. Conclusion From the Inmate Characteristics Results

When considered as the initial work force for the model prison industry program in Connecticut, the long-termers at Somers present an opportunity to fully test the effiacy of a real world oriented industry program for intractable offenders. These inmates are most likely to be in prison for a "hard core" offense and have a history of previous "hard core" convictions. The low scholastic skills and the result that about only 20 percent of the inmates in the survey had prior employment classified as skilled are important factors in the specification of the industrial program.

## B. Inmate Vocational Aspirations and Attitudes

### 1. Sample Survey of Inmate Attitudes

A sample survey of inmate attitudes toward prison industries in Connecticut was conducted. Inmates who were currently engaged in prison industries in Connecticut were interviewed in order that any aspirational and attitudinal factors which should be addressed in developing industry program changes would be identified. The interviews consisted of questions in three general areas:

1. Personal characteristics, such as age, marital status, etc.

2. Job assignment procedures, staff-inmate relations, attitudes toward work and training, etc.
3. Employment history, vocational aspirations, etc.

Of primary interest in this phase of the overall survey were the work attitude responses in area (2) and the vocational aspiration responses in area (3). The analyses of answers to questions concerning work attitudes, training, type of job and inmate recommendations for program improvements are most significant, since any changes in prison industries programs consistent with inmate suggestions and positive attitudes will render the program more easily implementable.

In the following sections of the report, details of the Inmate Attitude Survey, the background on the design of the instrument, and a demonstration of the manner in which the instrument was administered are given. Detailed findings of the survey are reported and their significance with respect to proposed changes in Connecticut's prison industry programs are discussed.

## 2. Design and Administration of the Instrument

A survey instrument designed to be used to gather information on prison industry workers' attitudes was pre-tested by the American Foundation, Inc. during the earlier "Host State Selection" phase of the project. A total of 325 inmates engaged in prison industry programs in seven states completed questionnaires. From this pretest experience, the survey instrument was revised and then administered in Connecticut's four prisons to the industry workers in the various prison shops. Table I-2, which follows, lists the shops at the four prisons and the number of workers interviewed in each shop.

In each institution the workers were either interviewed in their respective shops or in classrooms provided by the prison school. The survey was administered successively to each group of shop workers. The selection criteria used to choose which workers would be interviewed included:

1. The worker had to be willing to participate;
2. The worker had to be literate in order to fill out the questionnaire.

The questionnaires were distributed individually to the workers who met in groups of ten to twelve. Before the group members filled out the questionnaires, they were introduced to the American Foundation, Inc., told why the survey was being conducted and shown what was asked of each worker in completing the questionnaire. The voluntary nature of the survey was stressed and any worker who had reconsidered his willingness to participate was offered the opportunity to leave. A few workers chose to leave. The entire questionnaire is included in Appendix A.

## Table I-2

## Number of Inmates Interviewed in Each Job Shop

| Prison | Shop | Number of Respondents |
|---|---|---|
| Somers | Typewriter Repair | 14 |
| | Laundry | 24 |
| | Clothing | 24 |
| | Furniture | 35 |
| | Print | 15 |
| | Small Appliance | 2 |
| | Optical | 6 |
| | Dental | 6 |
| | Small Engine | 5 |
| | Warehouse | 3 |
| | | 134 |
| Enfield | Sign | 24 |
| | | 24 |
| Cheshire | Tag | 27 |
| | Print | 19 |
| | Cabinet | 10 |
| | Tool and Die | 5 |
| | Bindery | 3 |
| | | 64 |
| Niantic | Keypunch | 9 |
| | Motor Vehicle | 7 |
| | Sewing | 8 |
| | | 24 |
| Total | | 246 |

### 3. Results of the Inmate Attitude Survey

In general, the most significant information to be derived from this survey was gained from the industry workers at Somers. The Somers workers are the single largest group of industry workers concentrated at any one institution, and they are also the focus of attention for any changes in prison industry programs. In the analysis of the attitudinal survey, the results of the Enfield Sign Shop workers were combined with those cf the Somers Workers because the Sign Shop was the only shop surveyed at Enfield.

The questions of most concern in the analysis were those questions which describe the attitudes of the workers toward specific aspects of current prison industry operations. The key questions in assessing worker attitudes are questions 11, 13, 14, 15, 16, 17 and 22. For convenience, the results from the Dental, Optical, Small Engine and Small Appliance shops have been aggregated under the title "Vocational" Shop.

Clear patterns emerge from the tabulations in Table I-3. Most of the workers in the Laundry and Clothing Shops have negative attitudes toward these shops. These workers feel that the quality of instruction they receive from their foreman is less than good. Many of the Furniture Shop workers share this attitude. The Laundry and Clothing workers do not feel they are receiving valuable training or

## Table I-3

## Tabulations of Attitudes of Somers Inmates

**Question #11:** How would you rate the quality of instruction which you have received in the shop from your foreman? (check one)

| | Vocational | Typewriter | Laundry | Clothing | Furniture | Print | Sign |
|---|---|---|---|---|---|---|---|
| Good | 17 | 10 | 16 | 12 | 23 | 12 | 13 |
| Fair | 1 | 4 | 5 | 7 | 9 | 2 | 7 |
| Poor | 0 | 0 | 2 | 2 | 3 | 1 | 2 |
| Never got | 1 | 0 | 1 | 3 | 0 | 0 | 2 |

**Question #13:** Check what you think are the three most important things in improving prison industries for the inmates working in them.

Categories: A = Vacation time and sick leave

B = Better equipment

C = Industry jobs after release

D = Better pay

E = More/better vocational training

F = Better working conditions in the shop

G = Other ______________________________

| | Vocational | Typewriter | Laundry | Clothing | Furniture | Print | Sign |
|---|---|---|---|---|---|---|---|
| A | 1 | 1 | 3 | 3 | 5 | 1 | 1 |
| B | 10 | 8 | 12 | 6 | 10 | 5 | 10 |
| C | 13 | 9 | 12 | 12 | 19 | 11 | 15 |
| D | 17 | 9 | 19 | 18 | 34 | 13 | 22 |
| E | 6 | 6 | 11 | 10 | 26 | 9 | 13 |
| F | 2 | 5 | 3 | 7 | 5 | 0 | 3 |
| G | 1 | 0 | 0 | 1 | 2 | 4 | 0 |

**Question #14:** Do you feel that you are receiving valuable training in terms of getting and holding down a job on the outside by working in the shop you are now in? (check one)

| | Vocational | Typewriter | Laundry | Clothing | Furniture | Print | Sig |
|---|---|---|---|---|---|---|---|
| Yes | 13 | 6 | 6 | 2 | 17 | 9 | 7 |
| No | 2 | 4 | 16 | 15 | 8 | 1 | 11 |
| I don't know | 4 | 4 | 2 | 6 | 10 | 5 | 6 |

**Question #15:** How much help will your job in prison industry be in getting a job when you get out? (check one)

| | Vocational | Typewriter | Laundry | Clothing | Furniture | Print | Sign |
|---|---|---|---|---|---|---|---|
| Helpful | 13 | 6 | 2 | 1 | 17 | 8 | 5 |
| Job O.K., but | 4 | 4 | 10 | 5 | 10 | 4 | 8 |
| No Help | 0 | 1 | 6 | 10 | 2 | 1 | 3 |
| Diff. Job | 2 | 3 | 5 | 5 | 6 | 2 | 8 |

**Question #16:** What do you think is the greatest advantage to working in the shop you are now in? (check one)

| | Vocational | Typewriter | Laundry | Clothing | Furniture | Print | Sign |
|---|---|---|---|---|---|---|---|
| Parole | 0 | 1 | 1 | 3 | 4 | 0 | 0 |
| Pay | 0 | 0 | 17 | 2 | 1 | 0 | 0 |
| Job Skill | 15 | 9 | 2 | 5 | 17 | 11 | 7 |
| Work Assignment | 3 | 4 | 1 | 5 | 7 | 3 | 15 |
| Freedom | 0 | 0 | 0 | 3 | 1 | 0 | 0 |
| Other | 1 | 0 | 0 | 0 | 4 | 1 | 2 |

**QUESTION 17:** Rate each statement below according to how important you think it should be.

_____ A. Prison industry should develop in each inmate attitudes favorable to work.

_____ B. Prison industry should keep inmates' time filled.

_____ C. Prison industries should help inmates earn money to help out their familes.

_____ D. Prison industry should work with other prison programs.

_____ E. Prison industry should give each inmate enough money to "tide him over" upon release until he finds a job.

_____ F. Prison industry should give each inmate a vocational skill.

| RANKING | VOCATIONAL | TYPEWRITER | LAUNDRY | CLOTHING | FURNITURE | PRINT | SIGN |
|---|---|---|---|---|---|---|---|
| 1 | F | F | C | C | F | F | F |
| 2 | C | C | F | E | E | A | E |
| 3 | E | E | E | F | A | E | C |
| 4 | A | A | A | A | C | C | A |
| 5 | B | B | D | D | D | B | B |
| 6 | D | D | B | B | B | D | D |

experience for obtaining and holding an outside job. The Laundry workers do the job for the pay.

On the other hand, most of the workers in shops other than Laundry and Clothing have positive attitudes toward their shop. The instruction received from the shop foreman is good (except in the Furniture Shop) and these workers feel that the training and experience received from their prison job will be helpful in obtaining and holding an outside job. In fact, most of these workers think the greatest advantage to working in their present shop is the job skill they are gaining.

Vocational aspirations of the worker are directly related to the worker's shop job. Most men report that they want to find a job related to their prison industry job upon release. Workers in the Laundry and Clothing Shops do not.

As would be expected, all workers think better pay and industry jobs after release would be two improvements in prison industries.

In summary, clear differences of opinion emerged between the workers in the Laundry and Clothing Shops and the workers in other shops. There are differences in the goals, attitudes toward training, short-term benefits and expected long-term benefits as perceived by these men. The evaluation of the causes of these differences is useful in determining what positive aspects of shop experience could be transferred to all industrial shops.

## C. Administrator and Supervisor Attitudes

### 1. Survey of Administrator and Supervisor Attitudes

A survey of the attitudes of correctional administrators and prison industry supervisors concerning the goals, problems, and prospects of Connecticut's prison industry program was conducted as the final phase of the overall survey. The identification of the attitudinal factors of these two groups is important because the perceptions of administrators and supervisors about the present program have a major impact on changes or modifications contemplated in the future. An understanding of the attitudes of the administrators and the supervisors in terms of shared opinions or diverging opinions which must be addressed may be used to assure a smooth transition to a new industry program.

Information was gathered from the individuals in each group concerning their opinions of the goals of the prison industry program, operational characteristics and problems of the program, and the long-term prospects for the program.

### 2. Survey Instrument for Administrator and Supervisor Attitudes

The survey was conducted to measure the attitudes of administrators and supervisors toward prison industries in Connecticut's four major correctional institutions. The survey instrument, a six part questionnaire containing a total of 42 questions, was developed by Jude West, Director of the Center for Labor and Management at the University of Iowa. The instrument was first used in his 1970 study[2] of correctional industry programs in seven midwestern states.

All of the questionnaires, along with self-addressed envelopes, were hand delivered to the appropriate individuals with instructions to fill them out and to return them during the week following the visit. The tabulation of the number of respondents is given in Table I-4. The tabulation of the responses to the questionnaire is given in Tables I-5 to I-13.

### 3. Results of the Administrator and Supervisor Attitudes Survey

The answers of all administrators and of all supervisors were summarized and then compared. Numerous differences of opinion between these two groups were identified. These differences parallel the usual management and line operation differences and include the following:

- Administrators feel that prison industries should be represented on all major decision-making committees in the institution; supervisors are mixed as to whether industries should be represented on all major decision-making committees or only on committees dealing with issues directly involving industries.
- Almost all (eight of nine) administrators feel labor unions can play an important advisory role in addition to facilitating inmate union admission and job placement; most supervisors feel labor unions can do little to aid prison industries achieve their goals.

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[2] West, Jude and Straton (eds.), The Role of Correctional Industries, Center for Labor and Management, University of Iowa, 1971.

## Table I-4

## Administrator and Supervisor Respondents

| | Administrators | Supervisors | No Response |
|---|---|---|---|
| Somers | 3 | 15 | 6 |
| Enfield | 3 | 4 | 0 |
| Cheshire | 2 | 10 | 3 |
| Niantic | 1 | 3 | 3 |
| TOTAL | 9 | 32 | 12 |

## Table I-5 Ranking of Prison Industry Goals

| Goals | N=32 Total Supervisors | N=9 Institutional Administrative Staff |
|---|---|---|
| 1. To provide each inmate employed in industries with a high level of vocational skill. | 4 | 4 |
| 2. To develop in each inmate employed in industries a set of attitudes favorable toward work and the work situation. | 1 | 1 |
| 3. To develop in each inmate employed in industries the minimum qualifications necessary to hold a job (i.e., general job skills, the ability to follow safety rules, etc.) | 2 | 3 |
| 4. To develop in each inmate employed in industries attitudes favorable to living a law-abiding life. | 3 | 2 |
| 5. To help underwrite the cost of the total correctional program. | 7 | 7 |
| 6. To constructively occupy the time of the inmate population. | 5 | 5 |
| 7. To provide quality goods for the available markets in the state. | 6 | 6 |
| 8. To provide low cost goods for the available markets in the state. | 9 | 9 |
| 9. To make a profit. | 8 | 8 |

Table I-6 Number (%) Who Agree With Statements About Prison Industry

| Goals | N=32 Total Supervisors Number (Percent) | N=9 Institutional Administrative Staff Number (Percent) |
|---|---|---|
| 1. Prison Industries: | | |
| a. Should be retained only if they show a profit. | 0 | 0 |
| b. Should be required at the very least to be self-supporting. | 5 (16) | 2 (22) |
| c. Because of their contributions to inmate rehabilitation should be underwritten by the state if necessary. | 7 (22) | 0 |
| d. Should be judged first by their contribution to rehabilitation and only secondarily in terms of profit and loss. | 20 (62) | 7 (78) |
| 2. Inmates should be placed in industry jobs: | | |
| a. Solely on the basis of treatment considerations. | 2 (6) | 2 (22) |
| b. On the basis of compromise, taking into account the needs of industries, other programs and the inmate. | 22 (66) | 7 (78) |
| c. Solely on the basis of industry's selection. | 9 (28) | 0 |
| 3. The criteria for selecting industries for prison operation should focus primarily on: | | |
| a. Financial considerations (profit, market, etc.). | 1 (3) | 0 |
| b. Training considerations. | 12 (38) | 4 (44) |
| c. Future job placement considerations. | 19 (59) | 5 (56) |

Table I-6 Number (%) Who Agree With Statements About Prison Industry (continued)

| Goals | N=32 Total Supervisors Number (Percent) | N=9 Institutional Administrative Staff Number (Percent) |
|---|---|---|
| 4. Industries should be represented: | | |
| a. On all major decision-making committees in the institution. | 17 (53) | 9 (100) |
| b. Only on committees dealing directly with inmate affairs. | 1 (3) | 0 |
| c. Only on committees dealing with issues directly involving industries. | 10 (32) | 0 |
| d. Only on the classification committee. | 2 (6) | 0 |
| e. Only through the director of industries' contacts with the warden or his representative. | 2 (6) | 0 |
| 5. Industry's primary goal for inmate training should be to: | | |
| a. Develop sufficient skills for the men to handle their prison jobs without regard for later employment possibilities. | 0 | 0 |
| b. Develop general work skills in many inmates. | 8 (25) | 1 (11) |
| c. Develop general work skills in many inmates while providing specialized training to a few. | 10 (31) | 6 (67) |
| d. Develop specialized skills in many inmates. | 14 (44) | 2 (22) |
| 6. In terms of general involvement in the ongoing correctional process, industries personnel are: | | |
| a. Generally isolated. | 4 (13) | 1 (11) |

Table I-6 Number (%) Who Agree With Statements About Prison Industry (continued)

| Goals | N=32 Total Supervisors Number (Percent) | N=9 Institutional Administrative Staff Number (Percent) |
|---|---|---|
| b. Partially isolated. | 21 (65) | 8 (89) |
| c. Completely involved. | 7 (22) | 0 |
| 7. Labor Unions: | | |
| a. Can do little to aid prison industries achieve their goals. | 15 (47) | 0 |
| b. Can only contribute to industries' goals through facilitating inmate employment after release. | 5 (16) | 1 (11) |
| c. Can play an important advisory role in addition to facilitating inmate union admission and job placement. | 12 (37) | 8 (89) |

Table I-7 Number (%) Who Agree With Statements About Present State of Prison Industries

| Goals | N=32 Total Supervisors Number (Percent) | N=9 Institutional Administrative Staff Number (Percent |
|---|---|---|
| 1. Prison industries should be expected to run as efficiently as free industries. | 17 (53) | 6 (67) |
| 2. Inmates working in industries should be rewarded differently according to their productivity. | 26 (81) | 7 (78) |
| 3. The development of specific job skills, i.e., training should be more important in selecting a specific operation for prison industry than the amount of profit it could return. | 26 (81) | 8 (89) |
| 4. Industries should allocate more of their resources to inmate industrial training than they do. | 21 (66) | 9 (100) |

Table I-8 Number (%) Who Agree With Statements About Likely Future State of Prison Industries

| Goals | N=32 Total Supervisors Number (Percent) | N=9 Institutional Administrative Staff Number (Percent) |
|---|---|---|
| 1. Prison industries should be expected to run as efficiently as free industries. | 10 (31) | 6 (67) |
| 2. Inmates working in industries should be rewarded differently according to their productivity. | 20 (63) | 6 (67) |
| 3. The development of specific job skills i.e., training should be more important in selecting a specific operation for prison industry than the amount of profit it could return. | 16 (50) | 4 (44) |
| 4. Industries should allocate more of their resources to inmate industrial training than they do. | 19 (59) | 7 (78) |

Table I-9 Number (%) Who Agree With General Statements About Prison Industries

| Goals | N=32 Total Supervisors Number (Percent) | N=9 Institutional Administrative Staff Number (Percent) |
|---|---|---|
| 1. Only a few inmates acquire a high level of skill through industrial training. | 21 (66) | 8 (89) |
| 2. The employment provided for most inmates by industries is not much better than idleness. | 8 (25) | 6 (67) |
| 3. Inmates are worked a full eight-hour day. | 2 (6) | 1 (11) |
| 4. The level of work expected of inmates is equal to that expected by employers in free industry. | 9 (28) | 0 |
| 5. The work skills and habits acquired by inmates are few. | 17 (52) | 7 (78) |
| 6. Industries' profits contribute little to reducing the overall cost of corrections. | 14 (44) | 6 (67) |
| 7. Many inmates put the job skills they learn in prison to use on the outside. | 13 (41) | 1 (11) |
| 8. Prison Industries only partially resemble industries in free society. | 23 (72) | 8 (89) |
| 9. Civilian industries personnel are up-to-date on production procedures. | 24 (75) | 2 (22) |
| 10. Industries are relatively isolated from the rest of the prison at the administrative level. | 18 (56) | 2 (22) |

Table I-9 Number (%) Who Agree With General Statements About Prison Industries (continued)

| Goals | N=32 Total Supervisors Number (Percent) | N=9 Institutional Administrative Staff Number (Percent) |
|---|---|---|
| 11. Work release programs drain the most effective workers away from prison industries. | 13 (41) | 1 (11) |
| 12. Pressures to make industries profitable frequently interfere with inmate training and rehabilitative goals. | 13 (41) | 8 (89) |
| 13. Prison industries do not provide real vocational training but rather minimal on-the-job training. | 16 (50) | 8 (89) |
| 14. It is possible to make the work situation in prison industries sufficiently like that of free industries to make it a valuable experience for inmates. | 22 (69) | 8 (89) |
| 15. Industries use modern equipment and up-to-date operating procedures. | 23 (72) | 1 (11) |
| 16. Prison-made products are equal in quality to those made in free industry. | 24 (75) | 2 (22) |
| 17. A profit orientation is necessary in prison industries in order to maintain a realistic work atmosphere. | 21 (66) | 6 (67) |
| 18. In the final analysis profit and loss considerations determine most decisions made in prison industries. | 20 (61) | 8 (89) |

Table I-10 Average Ranking of Perceived Correctional Goals

| Goals | N=32 Total Supervisors | N=9 Institutional Administrative Staff |
|---|---|---|
| 1. Punishing the individual convicted of a crime. | 4 | 4 |
| 2. Rehabilitating the individual so that he becomes a productive citizen. | 1 | 2 |
| 3. Protecting society from crimes he might be committing. | 2 | 1 |
| 4. Changing community attitudes and conditions which contribute to crime and delinquency. | 3 | 3 |

Table I-11 Average Ranking of Ideal Correctional Goals

| | | |
|---|---|---|
| 1. Punishing the individual convicted of a crime. | 4 | 4 |
| 2. Rehabilitating the individual so that he becomes a productive citizen. | 1 | 1 |
| 3. Protecting society from crimes he might be committing. | 2 | 2 |
| 4. Changing community attitudes and conditions which contribute to crime and delinquency. | 3 | 3 |

Table I-12 Average Ranking of Perceived Inmate Assignment Influences

| Goals | N=32 Total Supervisors | N=9 Institutional Administrative Staff |
|---|---|---|
| 1. Industries' personnel needs | 2 | 1 |
| 2. Inmate financial needs | 5 | 5 |
| 3. Inmate training needs | 4 | 3 |
| 4. Institutional needs to keep inmates occupied. | 1 | 3 |
| 5. Inmate personal desires | 3 | 2 |

Table I-13 Average Ranking of Ideal Inmate Assignment Influences

| | | |
|---|---|---|
| 1. Industries' personnel needs | 3 | 3 |
| 2. Inmate financial needs | 5 | 5 |
| 3. Inmate training needs | 1 | 1 |
| 4. Institutional needs to keep inmates occupied. | 4 | 4 |
| 5. Inmate personal desires | 2 | 2 |

- All administrators who responded believe that industries should allocate more of their resources to inmate industrial training than they presently do. A majority of supervisors (21 of 32) agree.

- The majority of administrators (six of nine) view employment provided for most inmates by industries as not much better than idleness. Few supervisors (eight of 32) agree.

- Most supervisors (24 of 32) feel that correctional industries personnel are up-to-date on production procedures, but very few administrators (two of nine) agree.

- Some supervisors (13 of 32)--but only one administrator--feel that work release programs drain away the most effective workers from prison industries.

- Most administrators (eight of nine) feel that pressures to make industries profitable frequently interfere with inmate training and rehabilitation goals. Fewer than half of the supervisors (13 of 32) concur.

The administrator and supervisor differences must be addressed to assure a smooth transition to a new prison industries program. Both groups agree in their rankings of prison industry goals, but do not agree that present industry practices are meeting their goals. Industry profitability and inmate training and rehabilitation practices must be balanced. Work release programs must be considered for their effect on the program. Whether or not the employment provided for most inmates is nearly equivalent to idleness should be resolved by the implementation of the model prison industries program.

## D. Survey of Parolees

A survey of recent adult, male parolees from Connecticut state prisons was conducted with several purposes. First, the survey data provided information about the post-release experiences of ex-offenders for use in program planning and goal setting. Second, since later evaluations of model prison industry parolees may be biased by "spillover" effects of the model program on non-prison industry participants, this survey may later serve as a check on the control group. In addition, this early survey provided a chance to test portions of the proposed industry post-release performance analysis, described in Chapter V.

### 1. Sample Description

The sample was chosen from all adult males released on parole who had served some portion of their sentence at Somers. The sample was restricted to all inmates paroled to the Hartford district parole office between the dates of November 1, 1974, and April 4, 1975. Although staff members were in contact with all three parole offices in the state of Connecticut (Hartford, New Haven, Bridgeport), the data collection was greatly simplified by restricting efforts to a single office. The Hartford office was selected because it receives the most ex-offenders and has the most complete set of follow up information. The sample consisted of 74 parolees, but two immediate absconders reduced the total to 72.

Follow-up data were collected from three major sources:

- The parole officers provided monthly follow-up information from date of parole until January 31, 1976. For the most part, this information was drawn from notes in the officers' casebooks. The form used to collect this information is shown in Table I-14.

- ECON, Inc. staff collected biographical background information from the inmates' files at Somers. The form used to collect this information is shown in Table I-15.

- The Hartford Department of Social Services provided anonymous data on welfare payments made to members of the parolee sample during the follow-up period.

### 2. Data Analysis

During the survey period, some ex-offenders were dropped from the follow-up sample for several reasons. Some parolees were reincarcerated for violation of the parole agreement and/or for new convictions. Several members of the sample absconded from parole supervision during the follow-up period. In addition, parole officers had no information on individuals after discharge from parole. An account of this reduction in active sample size in given in Table I-16. Summing the sample size for each month yields a total of 815 parolee observation months, or an average of 12.7 months per parolee.

Three major aspects of post-release performance were analyzed: *employment*, *welfare receipts* and *recidivism*. The findings in each area are presented below.

Table I-14

PAROLEE FORM

**Name**______________________ #________ Parole Ofcr.____________ **Page**____

Month/Year__________________

Home Address______________________________________________

Employer__________________________________________________

Empl. Address______________________________________________

Job Title_________________________________________________

Gross Pay____________ Hourly Rate__________ Sick Days_________

Welfare Receipts___________________________________________

State Employment Service____________________________________

Non-Traffic Arrests/Date____________________________________

Misc.

## Table I-15

## INMATE PROFILE DATA SHEET

Date in, current offense: __________

Institution ____________________

1. Current Offense: ________________________________________

2. Present Sentence:

Indeterminate ________________

Fixed ________________

Other ________________

3. Earliest Parole Eligibility Date: ____________

3a. Maximum Date ______________

4. Date of Birth: ______________

5. Race: W B Spa A.I. Other ____________________

6. Marital Status: S M D/S/W

7. I.Q.: Below average ________ Average ________ Above average ________

8. Highest Grade Completed: ______

9. Educational Test Results: ______________________________

10. Number of Dependents: ______

11. Latest Residence Before Incarceration (town): ____________________

12. Age at First Conviction: ______

13. Jobs Before Incarceration: ______________________________
(Employed at time of arrest?) ______________________________

______________________________________________________

** Ratio of total time in prison to present age __________

(Table I-15 cont'd.)

14. **Previous Convictions**: From Most Recent (take at most four)

| Date | Offense | Disposition |
|---|---|---|
| | | |
| | | |
| | | |
| | | |

| 15a. Date In | Work Assignment | Date Out | Skill Level Achieved (0=none; 1=entry; 2=better) |
|---|---|---|---|
| | | | |
| | | | |
| | | | |
| | | | |

15b. **Institutional Assignments:**

(a) Work (see 15a above) ____________________

optional

(b) School ____________________

(c) Vocational Programs (fill in under 15a) ____________________

(d) Counseling ____________________

(e) Other ____________________

16. **Institutional Adjustments:**

optional

| | | |
|---|---|---|
| (a) Work | Good<br>Average<br>Poor | ____<br>____<br>____ |
| (b) School | Good<br>Average<br>Poor | ____<br>____<br>____ |
| (c) Other ____________ | Good<br>Average<br>Poor | ____<br>____<br>____ |

17. **Disciplinary Reports:** Number ________

optional

| Reasons | Dispositions |
|---|---|
| | |
| | |
| | |
| | |
| | |

## Table I-16 Post Release Experience Profile of Survey Parolees

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Months Since Date of Parole** | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 |
| Effective Sample Size | | 72 | 72 | 72 | 72 | 66 | 64 | 61 | 60 | 56 | 54 | 53 | 47 | 35 | 20 | 11 |
| Reasons for Sample Losses | absconders | 2 | | | | 2 | | -1* | | | | | | 1 | | |
| | end of parole | | | | | 1 | 2 | 1 | | 2 | | | | | | |
| | reincarceration | | | | | 3 | | 3 | 1 | 2 | 2 | | 1 | | | |
| | end of data (discharged) | | | | | | | | | | | 1 | 5 | 11 | 15 | 9 |
| All Arrests | | 1 | 2 | 3 | 4 | | 7 | 3 | 4 | 3 | 1 | 2 | 1 | | | 1 |
| Convictions | | | 1 | 1 | 1 | | 2 | | 1 | 2 | 1 | | | | | |
| Number Employed | | 42 | 44 | 41 | 42 | 42 | 44 | 37 | 36 | 37 | 34 | 34 | 31 | 19 | 11 | 6 |
| A. % Unemployed (including reincarcerants) | | 42 | 39 | 43 | 42 | 39 | 34 | 45 | 46 | 43 | 48 | 47 | 48 | 60 | 66 | 74 |
| B. % Unemployed (excluding reincarcerants) | | 42 | 39 | 43 | 42 | 36 | 31 | 39 | 40 | 34 | 37 | 36 | 34 | 46 | 45 | 46 |
| Monthly Income (average for those employed) | | $385 | $403 | $434 | $443 | $445 | $432 | $490 | $472 | $478 | $473 | $481 | $502 | ($506) | ($424) | ($617) |
| Number known to be receiving welfare aid | | 6 | 4 | 7 | 8 | 9 | 6 | 5 | 5 | 4 | 4 | 4 | 3 | 2 | 2 | 2 |

---

[*] One absconder returned.

[**] All monthly data is organized by time since release to parole. Therefore, month [illegible] for a December parolee is February; month 3 for a January parolee is March.

( ) Data shown in parentheses is unreliable due to small sample size.

### a. Employment

Measures of the survey group's post-release job performance include level of employment, income, job retention and relation of jobs to prison industry training. Table I-16 lists the number of employed parolees by month since release. These levels are also given as percentages of the number of work-eligible parolees. Row A includes reincarcerants among the unemployed; Row B does not. While these figures indicate little if any trend over time toward increased employment of the parolee group, this employment pattern may well be somewhat biased due to the discharge from parole of more successful members of the group. Four of the six discharged parolees had been employed steadily since the start of their parole terms. After correction for this bias, there does appear, at least by measure "B", a slight decrease in unemployment with time. It is important to note that statewide unemployment increased several percent over the same period. It should be noted that the employment data for months 13-15 may present a distorted picture due to the greatly decreased sample size.

Over the 15-month period, the parolees logged a total of approximately 500 months of employment. This, when compared with the 814 available months (914 if reincarcerants are included), yields an overall unemployment rate of 39 percent (46 percent including reincarcerants) for the study period. Both rates are considerably higher than the corresponding state average of

9.4 percent or the Hartford figure of 7.9 percent[3]. A detailed presentation of total months of employment is given in Table I-17. It is of interest to note that of the 32 arrests made during the follow-up period, 24 involved parolees who were unemployed that month, yielding a 75 percent rate of unemployment for parolees at the time of rearrest. This unemployment rate for rearrested parolees is significantly different at the 99 percent confidence level from the 39 percent unemployment rate for all parolees.

While unemployment data did not indicate a significantly decreasing rate of employment over time, the average income of employed parolees did increase fairly steadily throughout the first twelve months, with a 30 percent increase over the initial average. These data are summarized in Table I-16. Income data for months 13 through 15 are based on extremely small sample sizes, 10, 5 and 1 respectively. The small sample sizes, added to the fact that income data were not available for all who were employed, renders the data for this period less useful than the first twelve-month period. Examining the employment data for only those ex-offenders who worked continuously for at least six months, an average starting salary of $423/month is found, with an increase of $59/month at the end of six months. This income growth, amounting

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[3] Data for April 1975, "Area Trends in Employment and Unemployment," Manpower Administration, U.S. Department of Labor.

Table I-17 Employment Duration

| Duration (Months) | Months of Employment on First Job # | Months of Employment for any Job # | Total Months of Employment # |
|---|---|---|---|
| 0 | 10 | 10 | 10 |
| 0-1/2 | 3 | 8 | 2 |
| 1/2-1 | 11 | 20 | 4 |
| 2 | 5 | 9 | 2 |
| 3 | 6 | 14 | 3 |
| 4 | 6 | 9 | 5 |
| 5 | 4 | 9 | 5 |
| 6 | 4 | 6 | 4 |
| 7 | 1 | 3 | 2 |
| 8 | 3 | 4 | 3 |
| 9 | 2 | 3 | 5 |
| 10 | 3 | 4 | 5 |
| 11 | 2 | 4 | 6 |
| 12+ | 10 | 10 | 16 |

to a 30 percent annual average increase, is a more reliable figure than the overall income growth rate; the latter figure may exaggerate the rate of increase, due to low earners' dropping from the ranks of the employed. The highest individual income observed was $800/month, starting in month 7. This individual was employed steadily throughout the follow-up period. The average income of $502 for month 12, while considerably higher than the initial figure of $423, is well below the state average of $770 or the Hartford average of $830 for the same period.[4]

Job retention statistics are not a measure of employment placement failure or success, but they do provide an added dimension to the analysis of the parolees' employment experiences. Tables I-17 and I-18 present a summary of job retention data. Less than one-third of the parolees remained at their first post-release job for more than six months. The great majority (84 percent) of the parolees who worked changed jobs no more than once during the follow-up period. The average number of jobs for all workers was 1.7 during the follow-up of 12.7 months. Jobs lasting one month or less made up a substantial (25 percent) portion of all jobs held by the sample population. Where individuals held both short and long jobs, the long job usually followed the shorter job. The longest

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[4] Average of September 1974 and September 1975 income figures for Manufacturing (Production and Related) workers, provided by the Connecticut Department of Labor.

## Table I-18

### Number of Jobs During Survey Period

| Number of jobs | 0 | 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|---|---|
| Number of Parolees | 10 | 34 | 18 | 8 | 1 | 1 |
| % of Parolees | 14% | 47% | 25% | 11% | 1.5% | 1.5% |

| | | |
|---|---|---|
| Average time on 1st job: | 5.4 months | (for those who worked) |
| Average time over all jobs: | 4.8 months | (average over all jobs) |
| Average number of jobs over survey period: | 1.7 jobs over 12.7 months | (for those who worked) |
| Average total months employed: | 6.9 months of possible 12.7 months | (over all parolees) |
| | 8.0 months | (for those who worked) |

job held by each parolee who worked averaged 6.6 months. It is interesting to note that the averages mentioned above are taken from data that are more or less uniformly distributed over the range of possible values, with the exception of the proportion of parolees (14 percent) showing no employment at all during the follow-up period.

An important element in post-release employment evaluation is the relation of the survey parolees' post-release jobs to their prison industry training. The low proportion (14 of 50, or 28 percent) of offenders who found industry or prison work related jobs after release is disappointing. A breakdown by shop is given in Table I-19.

The low success rate was not entirely due to a failure of job placement services. Many prison industry inmates who were surveyed indicate little interest in working at a job related to their prison industry assignment.

In summary, the parolees in the sample exhibited a poor record of employment and income; an unusually high fraction of parolees rearrested were unemployed at the time of rearrest. Few parolees made use of experience gained in prison industries, and few retained their initial post-release job for more than six months.

### b. Welfare

In discussions with officials of the Connecticut Department of Social Services, ECON, Inc. learned that few, if any, ex-offenders would be eligible for state aid upon their

## Table I-19

### Post-Release Jobs Related to Prison Work Experience

| SHOP* | Small Engine Repair | Hospital Attendant | Kitchen[1] | Construction | Clerk | Laundry | Upholstery Furniture Woodworking | Other |
|---|---|---|---|---|---|---|---|---|
| JOB PLACEMENT SUCCESS RATE | 1 of 1 | 2 of 3 | 6 of 10 | 1 of 2 | 1 of 4 | 1 of 4 | 1 of 5 | 1 of 21 |
|  | (100%) | (67%) | (60%) | (50%) | (25%) | (25%) | (20%) | (5%) |

*Printing, Typewriter Repair, Optical and Dental shops were not represented in this sample.

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[1] The high job placement rate cited for kitchen staff is due in part to the efforts of the Connecticut Restauranteurs Association, which endeavors to place ex-offenders within participating establishments. This success suggests the need for similar cooperation between other shops and their "outside" counterparts.

release. During incarceration, families of inmates might receive AFDC monies, but this is difficult to trace, and outside the realm of a post-release survey. Members of the parolee survey were, however, eligible for local welfare funds for which the State Department of Social Services reimburses the towns 90 percent.

The parole officers were able to verify that 17 of the 72 paroless were receiving welfare payments at some time during the survey period. The Hartford Department of Social Services provided anonymous welfare payments data on 11 of these parolees. As indicated in Table I-20, the welfare payments show considerable variation, ranging from a low of $53/month to a high of $359/month, and the total known payments to the survey group are in excess of $10,600 over the survey period.

It should be noted that these payments included funds for prescriptions and doctor visits. These two items account for approximately 25 percent of the payments made to the parolees. Finally, it should be noted that these estimates of welfare payments are low for several reasons:

1. Some clients' files were blank.

2. Several parolees were receiving welfare from other towns or under other names, so Hartford had no files for them.

3. The parole officers advised that other parolees might be receiving welfare payments without the officer's knowledge.

## Table I-20

## City of Hartford Social Services Payments to Survey Parolees Known to be Receiving Welfare[1]

| Overall Payment During Survey Period[2] | Duration of Payments (months) |
|---|---|
| 64.65 | 1 |
| 1,964.72 | 6 |
| 695.47 | 13 |
| 1,401.29 | 7 |
| 457.58 | 2 |
| 1,932.65 | 11 |
| 842.36 | 7 |
| 143.31 | 1 |
| 408.05 | 1½ |
| 2,513.58 | 7 |
| 263.77 | 1 |
| Total: $10,687.43 | 57½ |

Average: $186 per recipient-month in welfare benefits.

---

[1] This list is conservative, for reasons outlined is the text.

[2] The data include payments for medicines and doctor visits.

### c. Recidivism

The following analysis of renewed criminal activity is based on the techniques of failure rate analysis. Application of these techniques to recidivism data is a recent development; the techniques allow a more sophisticated examination of ex-offender performance than is possible by conventional recidivism analysis. The techniques of failure rate analysis have already been applied successfully to the analysis of recidivism data for the Washington, D.C. Department of Corrections.

Failure rate analysis is based upon the concept that the elements to be tested have a probability distribution describing when they are likely to "fail." Given an item on test, the failure distribution, F(t), provides a measure of how likely that item is to fail during the start of the test up to any specified time of interest, t. An example of an exponential failure distribution is illustrated in Figure I-1. Here, we consider a failure to be the occurrence of a specifically defined act of recidivism. The use of the failure distribution is particularly important in the analysis of recidivism data because the data are "censored," that is, we do not know the failure times for all individuals in the parolee survey, since only a minority of the parolees "failed" during the 15-month period. While non-parametric [i.e., not dependent on the mathematical form of F(t)] methods do exist for comparing the failure rates of two sets of censored data, these tests are, in general, less powerful and can be more difficult to perform.

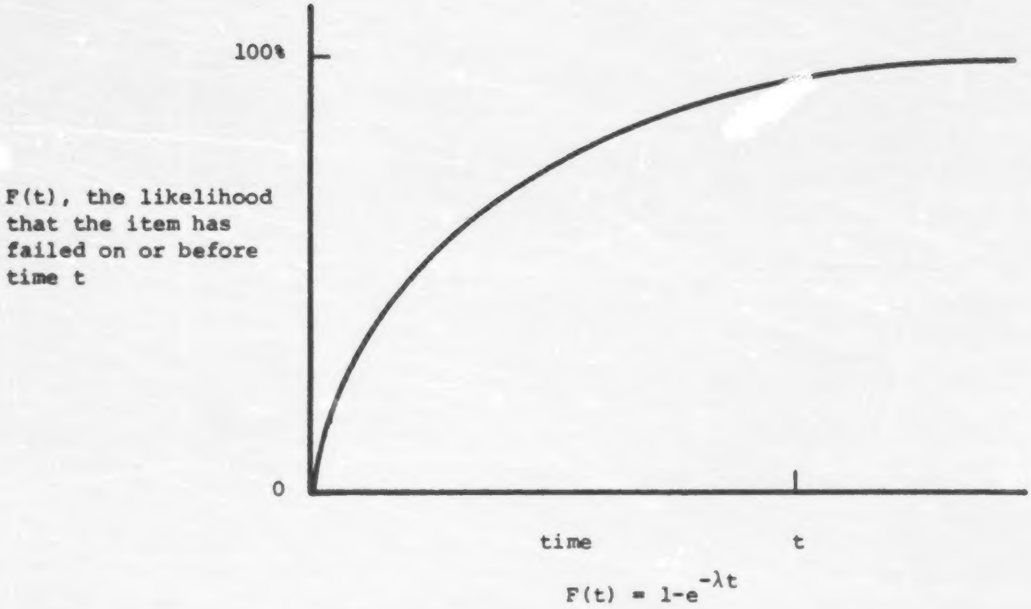

Figure I-1 Exponential Failure Cumulative Distribution Function

In the following analysis, three types of "failure" are examined:

1) the first new arrest,
2) reincarceration (pre or post-trial), and
3) reconviction

Stollmack and Harris found that an exponential failure distribution fit arrest data well.[5] This same assumption was tested with the three sets of data from the parolee sample. The analysis follows that is described in the Stollmack and Harris article.

Two caveats must be made at this point. First, the small number of data points available raises considerable doubt about the identity of the mathematical form of the parolee failure distribution. Second, the most commonly used failure distributions (Longnormal, Weibull and Exponential, and Gamma) differ only in the tails of the distributions, i.e., after long periods of time, where we have no data. Therefore, we must discourage any inferences relating to the form of the distribution for periods of time beyond the 15-month data horizon.

In Figures I-2 through I-4 we plot the cumulative failure rate versus failure time for each of the three

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[5] Stollmack, S. and C. M. Harris, "Failure Rate Analysis Applied to Recidivism Data," Operations Research, 22 No. 6 (Nov-Dec 1974), Operations Research Society of America, Baltimore, Maryland.

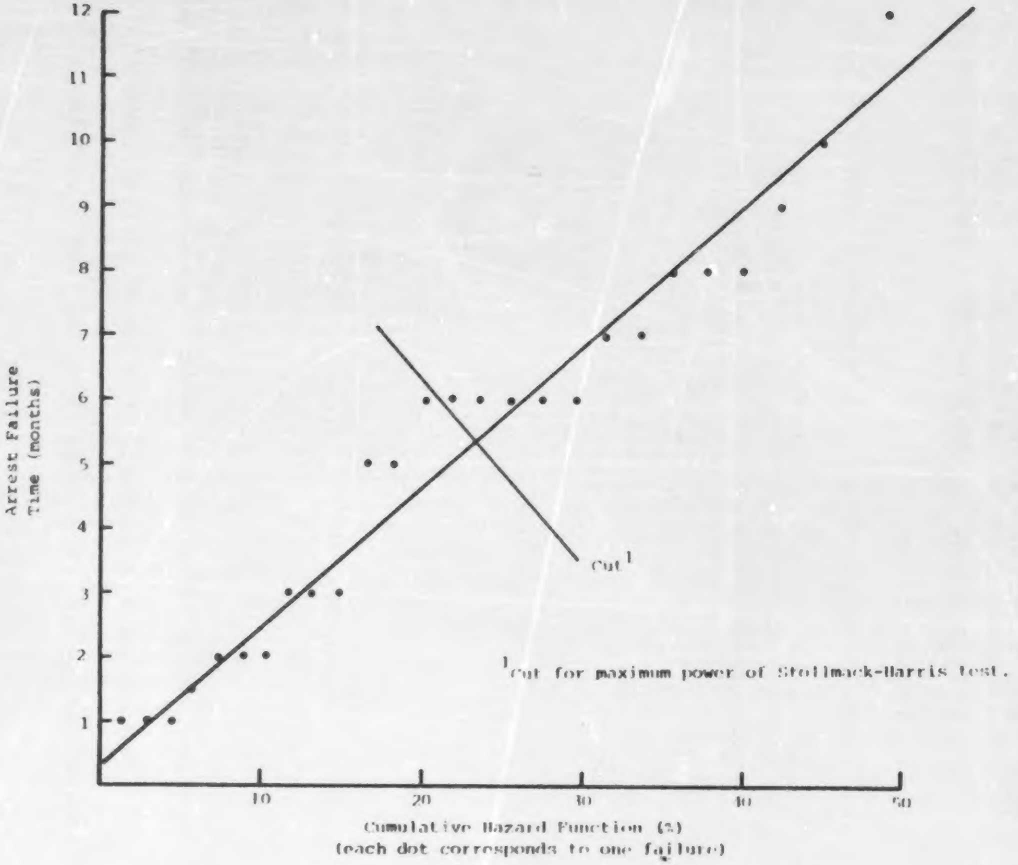


Figure I-2 Rearrest Hazard Plot

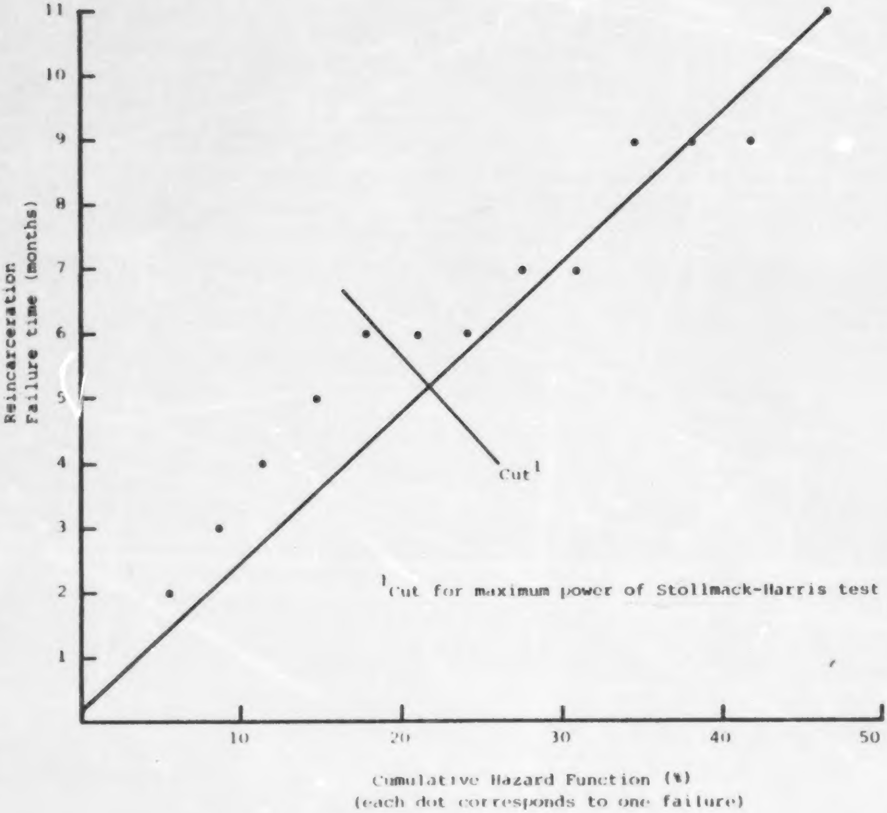
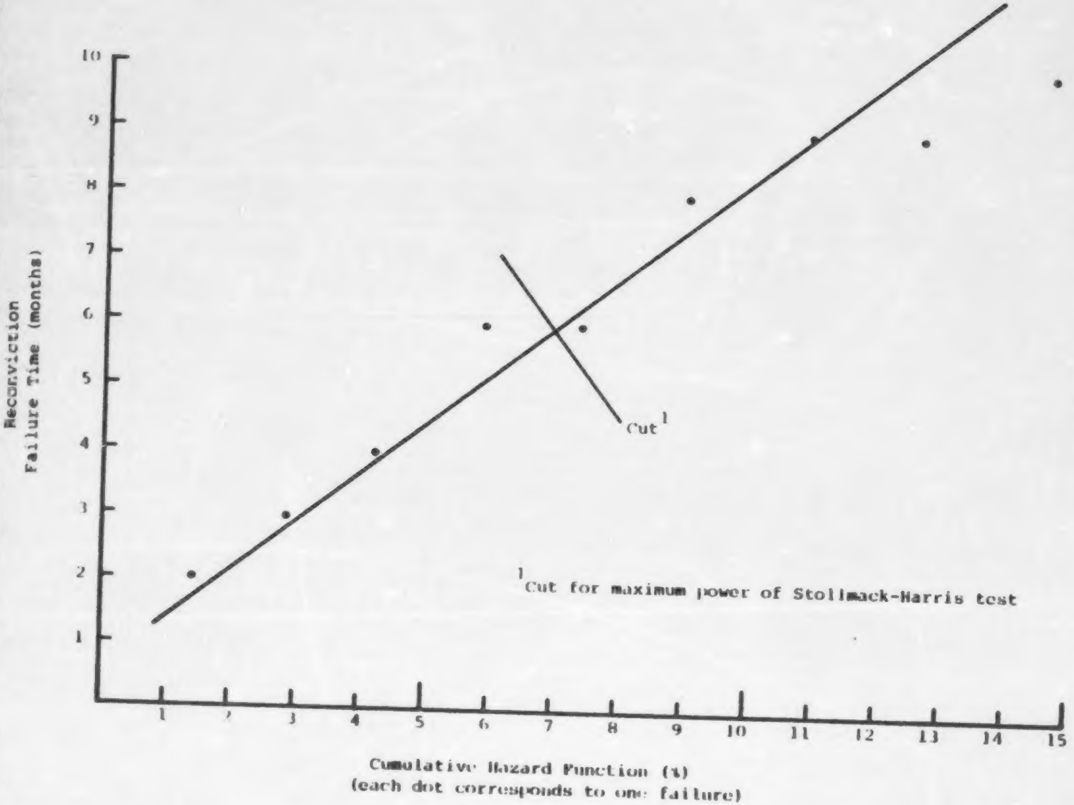


Figure I-3 Reincarceration Hazard Plot



[1] Cut for maximum power of Stollmack-Harris test

Figure I-4 Reconviction Hazard Plot

1

recidivism measures.[6] As described in Nelson,[7] data that fall approximately along a straight line on these graphs indicate an exponential failure distribution.

The exponential failure distribution can be represented as:

$$F(t) = 1 - e^{-\lambda t}$$

where $\lambda$ is the failure rate, and the mean time to failure is the reciprocal of the failure rate ($1/\lambda$).

As all three graphs look reasonably straight indicating agreement between the theoretical model and the empirical observations, we performed the statistical hypothesis test for exponentiality suggested in Stollmack and Harris. These results, outlined in Table I-21 show that it is difficult to reject the exponentiality failure model in any of the three cases.

The maximum likelihood estimates for each failure rate, $\lambda$, together with the imputed mean time to failure can be found in Table I-21. These numbers appear large because they include the survival time period for those who did not fail during the follow-up period as well as for those who did.

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[6] Nelson, W., "Theory and Applications of Hazard Plotting for Censored Failure Data," Technometrics 14, pp. 945-966, 1972. Herein, failure rate is defined as the percentage of items operating at time T that fail before time T + 1.

[7] Ibid.

## Table I-21 Statistical Hypotheses Tests of Exponential Failure Model

| Recidivism Measure | Rearrest | Reconviction | Reincarceration |
|---|---|---|---|
| Test Statistic "T" | 1.50 | 1.99 | 2.26 |
| Rejection region if willing to reject the exponential assumption when it is actually true: | | | |
| 5% of time | $T \geq 2.2$ or $T \leq 0.45$<br>do not reject | $T \geq 2.84$ or $T \leq 0.35$<br>do not reject | $T \geq 5.60$ or $T \leq 0.18$<br>do not reject |
| 10% of time | $T \geq 1.93$ or $T \leq 0.52$<br>do not reject | $T \geq 2.42$ or $T \leq 0.41$<br>do not reject | $T \geq 4.15$ or $T \leq 0.24$ |
| 20% of time | $T \geq 1.67$ or $T \leq 0.60$<br>do not reject | $T \geq 1.99$ or $T \leq 0.5$<br>marginal | $T \geq 2.98$ or $T \leq 0.34$<br>do not reject |
| Maximum Likelihood estimate for $\lambda$ (failures/month) | $\lambda \cong .038$ | $\lambda \cong .018$ | $\lambda \cong .011$ |
| Mean time to failure | 26.6 months | 56.8 months | 91.6 months |
| Predicted % recidivating within one year (using exponential Failure model) | 36.3 | 19.0 | 12.3 |
| Actual observed % recidivating within one year | 36.1 | 16.7 | 12.5 |

As mentioned earlier, due to differences in observation times on the survey parolees, a standard one-time recidivism measure will be inaccurate. If we assume that the discharged parolees are not rearrested, and that the sample losses due to end of data in period 11 and 12 are not arrested during those months, we can estimate a one-year first arrest recidivism rate of $\frac{26}{72}$ = 36.1 percent, very nearly equal to the figure postulated by the exponential model in Table I-21. The corresponding exponential-generated figures for incarceration and reconviction are 19 percent (vs. an observed 16.7 percent) and 12.3 percent (vs. an observed 12.5 percent) respectively.

In addition to the high rearrest rate cited above, we found that 25 percent of the arrest charges were for murder and assault, with an additional 16 percent of arrests for robbery. Additional data are presented in Table I-22.

This ex-offender record is due in part to the fact that many of the less serious offenders in Connecticut are diverted to probation or other programs rather than sent to Somers. As a result, the offenders who finally do wind up at Somers most frequently have long arrest records, with repeated convictions for serious crimes.

Our parolee survey reveals that as more and more offenders are diverted from maximum security sanctions, the

### Table I-22 Profile of Parolee Rearrests

| Arrest Charge | Murder | Attempted Murder | Assault | Robbery | Burglary | Larceny | Other |
|---|---|---|---|---|---|---|---|
| No. of Arrests | 1 | 1 | 1 | 5 | 2 | 5 | 12 |
| % of Arrests | 3% | 3% | 19% | 16% | 6% | 16% | 37% |

post-release performance of the residual population will deteriorate as a natural consequence. For this reason, Connecticut's maximum security prison can provide a good test group for prison industry programs geared toward the residual prison population of the 1980's.

# II ANALYSES OF EXISTING INDUSTRIES

## A. Job Market Surveys

### 1. Introduction

The focus of ECON's Inc.'s job market analyses for prison industries in Connecticut is to determine whether inmate workers from a given prison industry shop are likely to be able to secure a self-sustaining job upon release from prison.

The major indicators of the job market in an industry are employment and employment growth. Employment data are presented herein both for an industry as a whole and for specific occupations within the industry. Subsequently, where data are available, an analysis of industry-specific or occupation-specific wages is shown. Finally, an assessment is given of some of the more qualitative aspects of the job market, such as entry level skill requirements, union attitudes, licensing restrictions, possibilities for upward mobility, and the effect on manpower of technological trends in the industry.

Most of the data used in ECON, Inc.'s job market analysis were provided by the Connecticut Department of Labor, Employment Security Division. Additionally, data were obtained from two Federal sources: the United States Department of Commerce, Bureau of the Census, and the United States Department of Labor, Bureau of Labor Statistics. The data collected by these agencies are complete, have been reported regularly for many years, and afford internal consistency with respect to definitions of industrial and occupational classifications.

Most employment data are grouped by industry, in v[illegible]ng degrees of specificity. Both DOL and DOC categorize industry groups according to the definitions given in the Standard Industrial Classification (SIC) Manual.[1]

Because Federal law prohibits the publication of statistics that disclose information reported by individual companies, state employment data are typically aggregated at the 2-digit SIC level, thus diminishing the usefulness of these data for job market surveys. Because of their greater reporting detail, the Federal sources used most frequently in the job market analyses are (Bureau of the Census) Census of Manufactures--Summary Statistics, Industry Statistics, and Area Statistics, and (Bureau of the Census) County Business Patterns. When published for relevant industries, (Bureau of Labor Statistics) Industry Wage Surveys and Union Wage Reports were also used. Reporting requirements for Census and BLS surveys differ slightly, as do classification procedures; therefore, Federal and State Department of Labor data are not directly comparable with Census data, although there should be no major discrepancies.

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[1] The system operates in such a way that the definitions, coded numerically, become increasingly specific with the addition of successive digits. There are 20 very broad 2-digit major groups, approximately 150 3-digit groups, and 450 4-digit industries. (This manual was updated in 1972. Most changes in definitions occurred at the 4-digit SIC level; anyone comparing data grouped according to the 1967 Manual with data grouped by the 1972 Manual definitions should be aware that some categories may no longer correspond to one another.)

The State Department of Labor also routinely publishes employment projections for all occupations. These figures are based on the decennial census of the state's population; using DOL industry employment calculations and the state's 1970 industry-occupation matrix, occupational employment is projected for ten years. Current projections thus show 1980 employment levels. Occupation projections are available for three major labor market areas in the state.

In addition to the job market prospects for specific trades represented in the prison industries shops at Somers, employment opportunities in other, closely related trades should not be overlooked. A good source for the identification of occupations having transferable skills and job requirements is the U. S. Department of Labor publication, Dictionary of Occupational Titles (DOT), which classifies and defines approximately 35,000 occupational titles. By comparing occupations having the same DOT code number (which indicates occupational group and the level of complexity at which a worker functions) and worker trait group (which indicates common educational development requirements, vocational preparation, physical demands, aptitudes, and interests), additional jobs may be identified for which an inmate trained in a particular trade is also qualified.

In the sections which follow, detailed job market analyses for some of the existing prison industries at Somers are presented. Finally, suggestions for continuously monitoring the Connecticut labor market situation are set forth, and concluding remarks given.

## 2. Existing Industries

### (a) Somers Print Shop

#### (1) Introduction

The Print Shop at Somers performs small printing jobs (e.g., forms, calendars, pamphlets) on offset and platen presses. Eighteen inmates are assigned to the shop, which operates in a combined production/training mode. The State Department of Labor sponsors an 8,000-hours apprentice training program at Somers for offset lithographers.

The Somers Print Shop is identifiable by the Standard Industrial Classification (SIC) code 275, commercial printing. At the 4-digit level, commercial printing is subdivided into four categories: commercial printing letterpress and screen; commercial printing, lithographic; engraving and plate printing; and commercial printing, gravure. Of these, the Somers shop corresponds to SIC 2752- commercial printing, lithographic. Although the definitions of the 4-digit classifications were revised with the 1972 SIC manual, the disclosure restrictions on reporting have generally prevented publishing Connecticut data at the 4-digit level, and there are no difficulties with the comparability of historical data at the 3-digit level.

There are five main occupational categories in the Somers Print Shop: cold type compositor; offset press operator, lithographic; platen press operator; cameraman; and platemaker, offset lithography. These are related to the following occupational categories used by the Bureau of the Census: compositors and typesetters; electrotypers and stereotypers; engravers, except photoengravers; photoengravers and lithographers; and pressmen and plate printers.

### (2) Employment in the Printing Industry

For SIC 27, Printing and Publishing, in the fifteen year period 1960-1974, the nationwide employment showed an average annual rate of change of 1.4 percent (fifteen year unweighted average). By comparison, the average annual rates of change in employment in the printing and publishing industry in Connecticut and three of its labor market areas are shown in Table II-1. Table II-2 shows comparable changes in employment for SIC 275, Commercial Printing, for Connecticut and the United States; this information is not available for the three labor market areas.

When annual percent changes in employment are presented graphically, it can be seen that employment patterns in the printing and publishing industry in Connecticut closely resemble those of the nation, at least for the years 1970-1974 (see Figure II-1). In commercial printing, Connecticut employment patterns apparently lag one year behind those of the nation (see Figure II-2).

It is notable that national employment in the printing and publishing industry showed a steady increase from 1960 until 1970, after which employment began to fluctuate as shown in Figure II-1. Given these recent irregularities in employment growth and lacking information on specific

Table II-1 Changes in Employment, Printing and Publishing Industry (March, each year)

| | 1960 Employment | 1970 Employment | 1974 Employment | Average % Change Per Year |
|---|---|---|---|---|
| U. S.* | 905,500 | 1,112,800 | 1,110,800 | 1.4 |
| Connecticut | --- | 19,720 | 20,240 | 0.7 |
| Bridgeport | --- | 2,040 | 2,090 | 0.6 |
| Hartford | --- | 4,310 | 4,460 | 0.8 |
| New Haven | --- | 3,000 | 3,050 | 0.4 |

* March, 1975 - Employment = 1,082,400

Sources: Connecticut Department of Labor, Employment Security Division, Office of Research & Information, *Report on Employment*. U.S. Department of Labor, Bureau of Labor Statistics, *Employment and Earnings, United States, 1909-1972* (Bulletin 1312-9); *Employment and Earnings*, Vol. 21, No. 11, May, 1975.

Table II-2 Changes in Employment, Commercial Printing

(March, each year)

| | 1960 Employment | 1970 Employment | 1974 Employment | Average % Change Per Year |
|---|---|---|---|---|
| U. S. * | 289,700 | 358,400 | 361,800 | 1.6 |
| Connecticut | --- | 6,919 | 6,697 | 0.7 |

* March, 1975 - Employment = 351,800

Sources: Connecticut Department of Labor, Employment Security Division, Office of Research & Information, unpublished data. U. S. Department of Labor, Bureau of Labor Statistics, Employment and Earnings, United States, 1909-1972 (Bulletin 1312-9); Employment and Earnings, Vol. 21, No. 11, May, 1975.

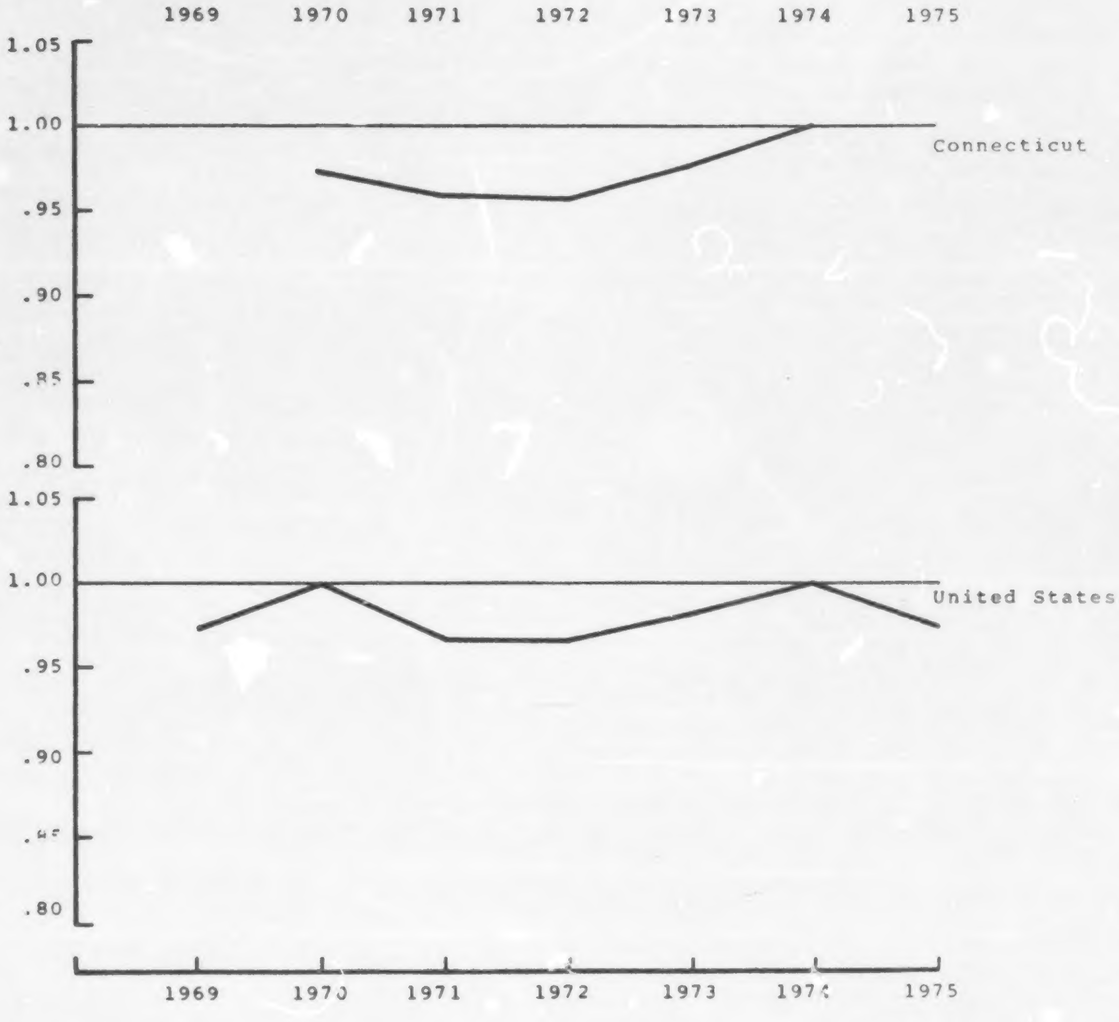

Figure II-1 Percent Change in Employment, 1970-1975 Printing and Publishing (1974=1.00)

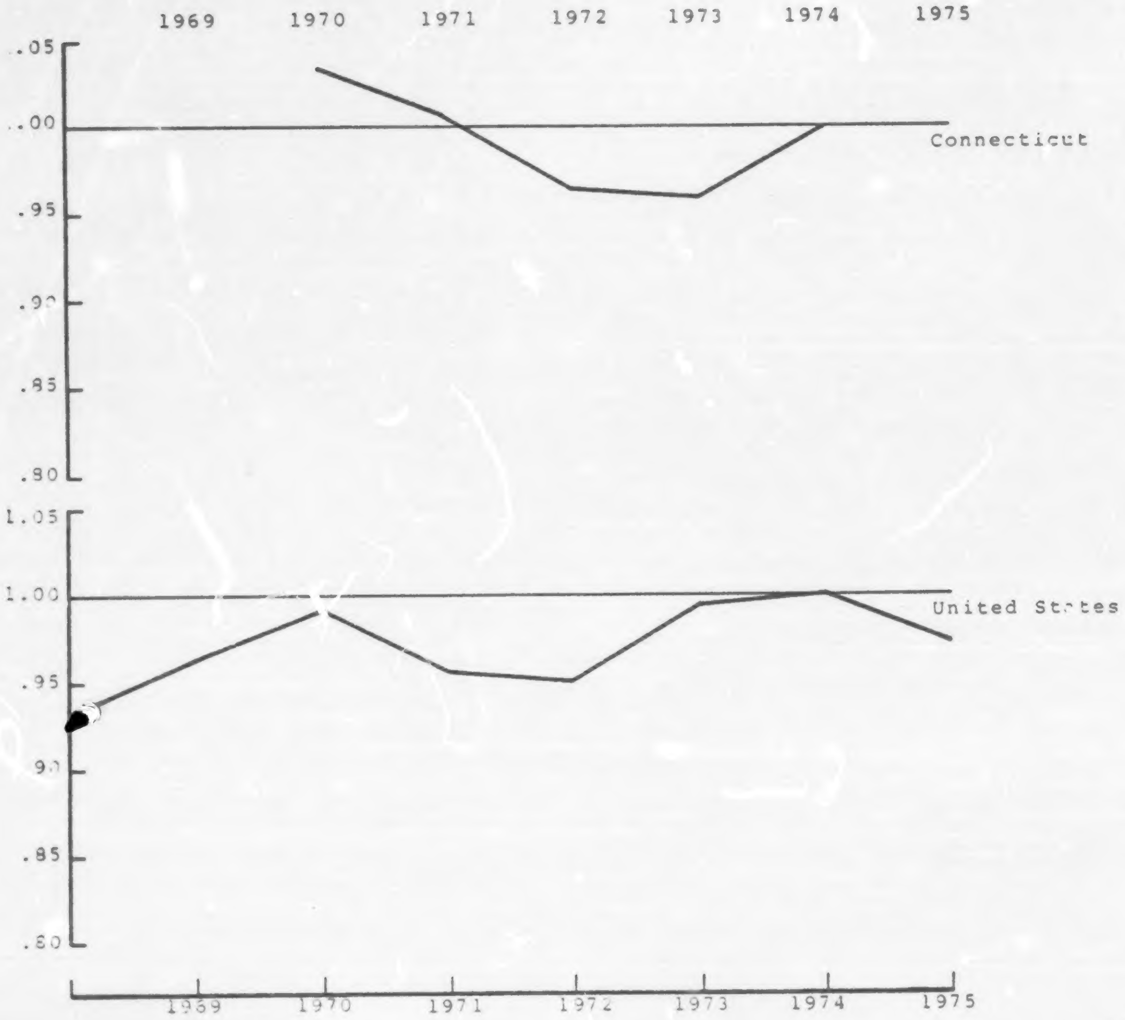

Figure II-2 Percent Change in Employment, 1970-1975
Commercial Printing (1974=1.00)

factors influencing employment in the industry, it seems ill-advised to attempt to forecast future employment on the basis of historical trends alone. The industry employment projections which appear later in this section are based on occupation employment projections developed by the Connecticut Department of Labor.

The printing and publishing industry in Connecticut is not subject to significant seasonal variation. For the five-year period 1970-1974, average monthly deviation from average annual employment did not exceed 1.4 percent.

Within the commercial printing industry in Connecticut, there are slightly less than 400 firms reporting employment data to the Department of Labor; the average number of employees per firm is 17. Table II-3 shows average number of commercial printing firms and average number of employees per firm for 1970-1974 in Connecticut.

Although we were unable to obtain corresponding figures for labor market areas in Connecticut from the State Department of Labor, the 1972 Census of Manufactures published by the U.S. Department of Commerce, Bureau of the Census shows number of employees and number of establishments in SIC 275 for the Bridgeport, Hartford and New Haven SMSA's. These figures are shown in Table II-4. Because the Census does not request report forms from establishments with less than ten employees, but classifies them on the basis of very brief descriptions of their general activity, there are inevitable

Table II-3 Average Number and Size of Firms, Connecticut, Commercial Printing

| | Average Number of Firms | Average Number of Employees/Firm |
|---|---|---|
| 1970 | 332 | 20 |
| 1971 | 358 | 18 |
| 1972 | 342 | 19 |
| 1973 | 382 | 17 |
| 1974 | 396 | 18 |

Source: Connecticut Department of Labor, Employment Security Division, unpublished data.

Table II-4 Number and Size of Firms in Selected SMSA's Commercial Printing, 1972

| | Total | With 20+ Employees | All Employees |
|---|---|---|---|
| Bridgeport | 60 | 13 | 1,000 |
| Hartford | 99 | 26 | 1,900 |
| New Haven | 56 | 18 | 1,300 |

Source: U.S. Department of Commerce, Bureau of the Census, 1972 Census of Manufactures-Area Series.

misclassifications. The total establishment count should therefore be viewed as an approximation. The counts for establishments with 20 or more employees are more reliable than the total number of establishments.

Another Bureau of the Census publication, County Business Patterns, shows a breakdown of the reporting establishments by number of employees. These data are subject to the same misclassification errors as the Census of Manufactures, and show county totals rather than SMSA totals. However, the size-of-firm distribution is of note: approximately one-half of the establishments in SIC 275 employ less than eight persons. This pattern has been consistent for the last four years reported by County Business Pattern. Size-of-firm distributions are shown in Table II-5.

### (3) Occupational Employment in Printing Trades

The Employment Security Division of the Connecticut Labor Department has prepared employment projections, based on 1970 Census data, to serve as indicators of occupational trends in the State. In the four tables which follow (Tables II-6 through II-9), projected employment changes in the printin trades are shown for the State and for three labor market areas--Bridgeport, Hartford and New Haven. From these tables it is apparent that for the State as a whole and for these three labor market areas as well, the only occupations in the printing trades which show sizable growth are photoengravers and lithographers, followed by pressmen and plateprinters.

Table II-5: Size-Of-Firm Distribution, Connecticut and Selected Counties Commercial Printing, SIC 275

| | Total Establishments | Number of reporting units, by employment-size class | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | 1-3 | 4-7 | 8-19 | 20-49 | 50-59 | 100-249 | 250-499 | 500 + |
| **CONNECTICUT** | | | | | | | | | |
| 1973 | 314 | 108 | 65 | 63 | 50 | 13 | 13 | 2 | - |
| 1972 | 299 | 113 | 45 | 66 | 50 | 10 | 13 | 2 | - |
| 1971 | 294 | 98 | 52 | 65 | 53 | 15 | 9 | 2 | - |
| 1970 | 297 | 101 | 51 | 61 | 54 | 17 | 11 | 2 | - |
| **FAIRFIELD** (includes Bridgeport) | | | | | | | | | |
| 1973 | 102 | 35 | 30 | 20 | 13 | 2 | 2 | - | - |
| 1972 | 97 | 39 | 18 | 22 | 13 | 2 | 3 | - | - |
| 1971 | 95 | 32 | 20 | 28 | 10 | 5 | - | - | - |
| 1970 | 91 | 32 | 19 | 23 | 11 | 5 | 1 | - | - |
| **HARTFORD CO.** | | | | | | | | | |
| 1973 | 95 | 30 | 20 | 17 | 18 | 5 | 4 | 1 | - |
| 1972 | 87 | 28 | 17 | 16 | 19 | 3 | 3 | 1 | - |
| 1971 | 85 | 27 | 16 | 15 | 20 | 3 | 3 | 1 | - |
| 1970 | 85 | 27 | 16 | 13 | 20 | 5 | 3 | 1 | - |
| **NEW HAVEN CO.** | | | | | | | | | |
| 1973 | 82 | 28 | 10 | 19 | 14 | 5 | 6 | - | - |
| 1972 | 81 | 31 | 6 | 21 | 13 | 4 | 6 | - | - |
| 1971 | 80 | 23 | 12 | 16 | 19 | 4 | 6 | - | - |
| 1970 | 87 | 27 | 12 | 18 | 19 | 5 | 6 | - | - |

Source: U.S. Department of Commerce, Bureau of the Census, County Business Patterns - Connecticut, 1970-1973.

### Table II-6 Projected Employment Changes, Connecticut

| | 1970 | 1980 | Change, 1970-1980 | | Deaths and Retirements 1970-1980 | Total Manpower Needs 1970-1980 |
|---|---|---|---|---|---|---|
| | | | % | Net | | |
| Total, All Occupations | 1,265,100 | 1,432,130 | 13.2 | 167,030 | 512,180 | 679,210 |
| Craftsmen | 181,930 | 189,350 | 4.1 | 7,420 | 39,520 | 46,940 |
| Printing Trades | | | | | | |
| Craftsmen | 7,440 | 7,920 | 6.5 | 480 | 1,960 | 2,440 |
| Bookbinders | 370 | 400 | 8.1 | 30 | 130 | 160 |
| Compositors and Typesetters | 3,400 | 3,340 | -1.8 | -60 | 1,090 | 1,030 |
| Electrotypers, Stereotypers | 80 | 80 | 0.0 | 0 | 10 | 10 |
| Engravers, Except Photoengravers | 250 | 240 | -4.0 | -10 | 80 | 70 |
| Photoengravers, Lithographers | 840 | 1,100 | 31.0 | 260 | 200 | 460 |
| Pressmen and Plate Printers | 2,500 | 2,760 | 10.4 | 260 | 450 | 710 |

Source: Connecticut Department of Labor, Employment Security Division Occupational Outlook 1970-1980: Statewide.

Table II-7 Projected Employment Changes, Bridgeport

|  | 1970 | 1980 | Change, 1970-1980 |  | Deaths and Retirements 1970-1980 | Total Manpower Needs 1970-1980 |
|---|---|---|---|---|---|---|
|  |  |  | % | Net |  |  |
| **Total, All Occupations** | 163,400 | 177,760 | 8.8 | 14,360 | 63,230 | 77,590 |
| **Craftsmen** | 24,930 | 24,900 | -0.1 | -30 | 5,000 | 4,970 |
| **Printing Trades Craftsmen** | 1,090 | 1,150 | 5.5 | 60 | 260 | 320 |
| **Bookbinders** | 50 | 50 | 0.0 | 0 | 10 | 10 |
| **Compositors and Typesetters** | 490 | 480 | -2.0 | -10 | 150 | 140 |
| **Electrotypers, Stereotypers** | 10 | 10 | 0.0 | 0 | 0 | 0 |
| **Engravers, Except Photoengravers** | 50 | 50 | 0.0 | 0 | 10 | 10 |
| **Photoengravers, Lithographers** | 140 | 180 | 28.6 | 40 | 30 | 70 |
| **Pressmen and Plate Printers** | 350 | 380 | 8.6 | 30 | 60 | 90 |

Source: Connecticut Department of Labor, Employment Security Division Occupational Outlook 1970-1980: Bridgeport.

Table II-8 Projected Employment Changes, Hartford

|  | 1970 | 1980 | Change, 1970-1980 |  | Deaths and Retirements 1970-1980 | Total Manpower Needs 1970-1980 |
|---|---|---|---|---|---|---|
|  |  |  | % | Net |  |  |
| Total, All Occupations | 289,500 | 335,730 | 16.0 | 46,230 | 120,060 | 166,290 |
| Craftsmen | 38,640 | 40,730 | 5.4 | 2,090 | 8,010 | 10,100 |
| Printing Trades Craftsmen | 1,810 | 1,960 | 8.3 | 150 | 460 | 610 |
| Bookbinders | 90 | 100 | 11.1 | 10 | 30 | 40 |
| Compositors and Typesetters | 860 | 870 | 1.2 | 10 | 280 | 290 |
| Electrotypers, Stereotypers | 30 | 30 | 0.0 | 0 | 0 | 0 |
| Engravers, Except Photoengravers | 70 | 70 | 0.0 | 0 | 20 | 20 |
| Photoengravers, Lithographers | 170 | 230 | 35.3 | 60 | 30 | 90 |
| Pressmen and Plate Printers | 590 | 660 | 11.9 | 70 | 100 | 170 |

Source: Connecticut Department of Labor, Employment Security Division, Occupational Outlook 1970-1980: Hartford.

Table II-9 Projected Employment Changes, New Haven

| | 1970 | 1980 | Change, 1970-1980 | | Deaths and Retirements 1970-1980 | Total Manpower Needs 1970-1980 |
|---|---|---|---|---|---|---|
| | | | % | Net | | |
| Total, All Occupations | 155,100 | 168,010 | 8.3 | 12,910 | 61,550 | 74,460 |
| Craftsmen | 19,260 | 19,320 | 0.3 | 60 | 3,710 | 3,770 |
| Printing Trades Craftsmen | 930 | 950 | 2.2 | 20 | 210 | 230 |
| Bookbinders | 40 | 40 | 0.0 | 0 | 10 | 10 |
| Compositors and Typesetters | 360 | 330 | -8.3 | -30 | 110 | 80 |
| Electrotypers, Stereotypers | 10 | 10 | 0.0 | 0 | 0 | 0 |
| Engravers, Except Photoengravers | 10 | 10 | 0.0 | 0 | 0 | 0 |
| Photoengravers, Lithographers | 150 | 190 | 26.7 | 40 | 30 | 70 |
| Pressmen and Plate Printers | 360 | 370 | 2.8 | 10 | 60 | 70 |

Source: Connecticut Department of Labor, Employment Security Division. Occupational Outlook 1970-1980: New Haven.

These are two of the three Census occupational categories that include the occupations at Somers Print Shop. The third Census category, compositors and typesetters, shows little or negative growth. Moreover, this is a trade that is particularly vulnerable to increasing automation. It is noteworthy, however, that despite the growth trends of the latter occupational category, the projected total manpower needs during the decade 1970-1980 is at least as attractive as that of the two growth occupations of the printing industry.

### (4) Wages in Printing Trades

Average hourly wages for production and related workers in the printing and publishing industry in Connecticut compare favorably to the average hourly wages for manufacturing production work as a whole; for the last five years, production workers in printing and publishing have earned better than fifty cents an hour more than the overall manufacturing wage.

Among the three labor market areas for which hours and earnings data are published, the highest average hourly wages in the printing and publishing industry are found in Bridgeport, where production workers in printing and publishing earn at least a dollar an hour more than the average wage for total manufacturing trades. Wages in printing and publishing as well as manufacturing in New Haven parallel statewide averages quite closely. Hartford shows the highest average hourly wage in total manufacturing and the lowest in printing and publishing, although the difference between the two wages is not great. Table II-10 shows average hourly earnings of production and related workers in Connecticut, Bridgeport, Hartford and New Haven for total manufacturing and for printing and publishing, 1971-1975.

Average hourly wages in the printing trades alone have been reported by BLS for 70 U.S. cities, weighted when necessary to be representative of other cities in the same region with similar population size. New Haven, Connecticut was among the 70 cities surveyed, and the reported union wages for New Haven reflect those in other cities in New England in the

Table II-10. State and Local Average Hourly Earnings, Connecticut Production and Related Workers

| | Statewide | | Bridgeport | | Hartford | | New Haven | |
|---|---|---|---|---|---|---|---|---|
| | Total Mfg. | Printing & Publishing | Total Mfg. | Printing & Publishing | Total Mfg. | Printing & Publishing | Total Mfg. | Printing & Publishing |
| September 1971 | $3.65 | $4.33 | $3.71 | $4.75 | $3.80 | $4.21 | $3.66 | $4.37 |
| " 1972 | 3.93 | 4.58 | 4.01 | 5.13 | 4.14 | 4.19 | 3.85 | 4.80 |
| " 1973 | 4.19 | 4.83 | 4.21 | 5.50 | 4.38 | 4.34 | 4.08 | 4.92 |
| " 1974 | 4.51 | 5.04 | 4.41 | 5.70 | 4.64 | 4.73 | 4.40 | 5.12 |
| " 1975 | 4.83 | 5.36 | 4.62 | 5.84 | 5.25 | 5.09 | 4.81 | 5.44 |

Sources: Connecticut Department of Labor, Employment Security Division: *Monthly Report on Hours and Earnings*; *Connecticut Average Weekly Wages, Hours, and Hourly Earnings, Production and Related Workers, by Month and by Industry, 1960-1973*; *Connecticut Labor Situation, October 1975*, October 1974.

100,000-250,000 population group. Table II-11 shows average wage rates in the printing trades by industry branch, as of July 1, 1974. BLS also reports 1974 average union hourly wage rates for specific occupations in the printing trades. These are shown in Table II-12. Regional and city averages are influenced by such factors as differences in the occupational composition for a given industry branch among and within cities, due to local printing demand. Where a particular craft wage rate is not indicated for New Haven, that craft was not covered by a collective bargaining agreement and thus was not recorded for the BLS survey.

### (5) Skill Requirements and Opportunity for Advancement

Outside jobs in most of the five printing trades currently practiced in the print shop at Somers do not have formal educational requirements, such as a high school diploma or specialized technical training. Both offset press and platen press operators typically learn their trade by on-the-job training, as do platemakers in offset lithography. Cameramen also receive on-the-job training, although extra technical skills may be learned by attending vocational-technical courses. Skills in cold type composition range from simple typing ability, which demands no specific educational background, to computer programming and systems analysis, for which a high school degree and technical school training are required. This range of skills reflects the implementation in newspaper and large printing operations of new automation technologies, including computers.

Table II-11 Average Union Hourly Rates in the Printing Trades, by Industry Branch, July 1, 1974

| City Category / Industry Branch | All Printing | Book & Job Shops | Newspaper | Commercial Lithographic |
|---|---|---|---|---|
| All U.S. | $6.80 | $6.34 | $7.01 | $7.50 |
| Size: 100,000-250,000 | 5.96 | 5.22 | 6.29 | 6.79 |
| Region: Northeast | 6.67 | 5.89 | 7.00 | 7.12 |
| New Haven | 5.96 | 5.74 | 6.10 | 6.10 |

Source: U.S. Department of Labor, Bureau of Labor Statistics. Bulletin #1881 Industry Wage Survey: Printing Industry. Washington, D.C., 1975.

Table II.12 Average Union Hourly Wage Rates in the Printing Trades, by Trade, July 1, 1974

| Trade | United States | New England | New Haven |
|---|---|---|---|
| All Printing Trades | $6.90 | $6.67 | $5.96 |
| Book and Job | 6.34 | 5.89 | 5.74 |
| Bindery Workers (Journeymen II) | 4.17 | 3.81 | 3.36 |
| Bookbinders (Journeymen I) | 6.63 | 6.01 | 5.63 |
| Compositors, Hand | 7.11 | 6.08 | 5.99 |
| Electrotypers | 6.22 | 5.70 | - |
| Machine Operators | 6.97 | 6.11 | 5.99 |
| Machine Tenders (Machinists) | 7.35 | 6.21 | - |
| Mailer | 5.69 | 3.94 | 3.94 |
| Photoengravers | 7.74 | 7.22 | 6.85 |
| Press Assistants and Feeders | 6.09 | 5.30 | 4.94 |
| Pressmen, Cylinder | 6.73 | 5.83 | 5.82 |
| Pressmen, Platen | 5.86 | 5.42 | 5.32 |
| Stereotypers | 6.78 | - | - |
| Cameramen | 6.32 | 6.53 | - |
| Platemakers | 6.23 | 6.10 | - |
| Strippers | [illegible] | 6.30 | - |
| Newspapers | 7.01 | 7.00 | 6.10 |
| Daywork | 6.82 | 6.81 | - |
| Nightwork | 7.19 | 7.19 | - |
| Compositors, Hand | 6.97 | 6.74 | 6.10 |
| Daywork | 6.86 | 6.66 | 6.00 |
| Nightwork | 7.07 | 6.84 | 6.20 |
| Machine Operators | 7.15 | 6.92 | 6.10 |
| Daywork | 6.97 | 6.70 | 6.00 |
| Nightwork | 7.30 | 7.08 | 6.20 |
| Machine Tenders (Machinists) | 7.01 | 6.85 | 6.30 |
| Daywork | 6.88 | 6.77 | 6.20 |
| Nightwork | 7.15 | 6.95 | 6.40 |
| Mailers | 6.70 | 6.92 | - |
| Daywork | 6.50 | 6.68 | - |
| Nightwork | 6.91 | 7.15 | - |
| Photoengravers | 7.42 | 7.70 | - |
| Daywork | 7.27 | 7.59 | - |
| Nightwork | 7.58 | 7.85 | - |
| Pressmen (Journeymen) | 7.01 | 7.42 | - |
| Daywork | 6.74 | 6.94 | - |
| Nightwork | 7.30 | 7.92 | - |
| Pressmen-in-Charge | 7.61 | 7.72 | - |
| Daywork | 7.33 | 7.14 | - |
| Nightwork | 7.89 | 8.15 | - |
| Stereotypers | 6.98 | 6.71 | 6.10 |
| Daywork | 6.69 | 6.68 | 6.00 |
| Nightwork | 7.27 | 6.75 | 6.20 |
| Lithography | 7.50 | 7.12 | 6.10 |
| Artists | 7.90 | 7.38 | - |
| Cameramen | 7.72 | 7.33 | 6.14 |
| Platemakers | 7.59 | 6.99 | 6.04 |
| Press Assistants and Feeders | 6.63 | 6.22 | 5.67 |
| Pressmen, Offset | 7.81 | 7.74 | 6.30 |
| Strippers | 7.57 | 7.02 | 6.32 |

Source: U.S. Department of Labor, Bureau of Labor Statistics, Bulletin #1881, op. cit., 1975.

The printing trades are highly unionized, and entry into a given printing occupation is usually as an apprentice or apprentice helper for training under contract. Once in this position, advancement ideally occurs at the rate at which a worker gains proficiency. Training typically lasts from four to six years. Further, advancement rates are affected by external variables such as the availability of jobs at different skill levels or changes in skill requirements brought about by the introduction of new equipment.

Four trade unions represent almost all of the workers in the printing trades. The International Typographical Union (ITU) represents hand compositors, machine operators and machine tenders. The Graphic Arts International Union (GAIU), resulting from the 1972 merger of the Lithographers' and Photengravers' International Union (LPIU) with the International Brotherhood of Bookbinders (IBB), covers bindery workers, bookbinders, photoengravers and most craft workers under commercial lithography contracts. Press operators and press assistants outside of commercial lithography, electrotypers, and stereotypers belong to the International Printing and Graphic Communications Union (IPGCU) which was created in 1973 from the former International Printing Pressmen and Assistants Union (IPP&AU) and the International Stereotypers' and Electrotypers' Union (ISEU). Most mailers are members of the International Mailers' Union (IMU).

In Connecticut, the printing trade unions have no membership restrictions which are applied to ex-offenders. In fact, there are approximately 20 Department of Labor-supervised apprenticeship programs in the corrections system in Connecticut, which are part of a statewide apprenticeship program. In these programs, DOL works with unions to establish norms and achievement criteria for each trade, then field staff are assigned to supervise individual programs throughout the State. The offset lithography trades at Somers constitute one such program. A vocational coordinator at Somers keeps records of the number of hours an inmate works at a given trade; these hours are applied to post-release job placements. Upon release, an inmate is processed through the Apprentice Training Division of the state DOL and is referred to a field representative in the area of the state to which he is released. The field representative, in turn, has responsibility for job placement activites.

### (6) Job Market Analysis: Print Shop

Of the printing trades represented in the Somers Print Shop, the press operations jobs impart skills that are directly transferable to the greatest number of other jobs. While cold type composition, platemaking, and camerawork each involve skills that are directly applicable to an average of five other jobs, platen and offset press operators are capable of performing at least fifteen alternate jobs, primarily the operation of other types of presses. (Jobs requiring skills directly related to those of prison industry jobs were identified as having identical DOT code numbers as prison industry jobs as well as being classified in the same Worker Traits group in the DOT.)

### (7) Trends in Printing[2]

Developments in printing equipment during recent years are producing significant changes in the size and occupational composition of the industry's work force. These technological innovations include: computers which automatically justify lines of text; phototypesetting machines which enable a specially trained typist to set text in film without the expensive manufacture of metallic type; advanced photographic techniques, which improve color separation - an essential aspect of the reproductin of multicolor subjects; automatic film-processing system; high-speed electronically controlled printing presses; and bindery machinery which performs many operations formerly done by hand. These and other forms of automation are designed to increase print shop efficiency but may limit employment opportunities in the printing industry, despite continued growth in demand for printed material. Moreover, automation modifies, and in some case lowers, skill requirements for printing trades workers. In platemaking and press operations, new equipment and methods require more technical skill and less of the traditional craft skills. Lithography, as the fastest growing process, will be responsible for most of the growth in platemaking occupations. As all lithographic printing plates are made from photographs, new technologies such as automatic film developing systems, electronic color separation equipment, and automatic plate processors will modify skill requirements for lithographic platemakers.

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[2] References: U.S. Department of Labor, Bureau of Labor Statistics. Bulletin #1881, op. cit., 1975. Bulletin #1774, Outlook for Technology and Manpower in Printing and Publishing, 1973.

The increasing automation of printing press controls is changing the skill requirements of pressmen, allowing them to spend more time on quality control. In this case, traditional craft skills become less important and technical knowledge and ability become more critical. Employment is expected to increase moderately for press operators and assistants. This is attributable to an anticipated increase in printing output, and should be very noticeable in that part of the industry using web-offset printing presses. Total national employment in the printing and publishing industry is expected to increase slightly between 1970 and 1980, as employment increases generated by a rising demand for printed products more than offset employment declines resulting from technological change. In the newspaper segment of the industry, however, employment is projected to decline from 372,000 in 1970 to an estimated 365,000 in 1980. In commercial printing, the level of employment is projected to be higher, rising from 356,000 in 1970 to an estimated 390,000 in 1980.

Employment of nonproduction workers is likely to grow at a faster rate than that of production workers. This is anticipated because the productivity of production workers, using new technology, is expected to increase more than that of nonproduction workers, to whom most of the new technology is not applicable. It has also been predicted that, due to the use of new technology, there will be a growing need for more professional managers, engineers and technically trained employees.

### (b) Somers Optical Laboratory

#### (1) Introduction

The Optical Laboratory at Somers employs six inmate trainees in the production of corrective lenses and eyeglasses. The emphasis in the shop is primarily on training, since production is currently limited to the intra-institutional market, and most of this work is in practice channeled to outside labs.

The Somers Optical Lab falls into the Standard Industrial Classification Code 385 (or 3851; the 3-digit and 4-digit industries are the same), ophthalmic goods. The broader SIC code 38 covers instruments and related products, e.g., engineering and scientific instruments, measuring and controlling devices, optical instruments and lenses, medical instruments and supplies, photographic equipment and supplies, and watches, clocks, and watchcases. SIC 385 is comprised of establishments whose major activity is the manufacture of eyeglasses, corrective lenses, eyeglass frames, sunglasses, contact lenses, and other ophthalmic products.

The occupations in the Somers Optical Lab--mechanical optician (trainee) and licensed optician (trainee)--correspond to the Bureau of the Census occupational title "opticians, lens grinders, and polishers", a craft trade.

### (2) Employment in Optical Labs in Connecticut

The Connecticut State Department of Labor publishes employment, hours, and earnings for major industry groups at the 2-digit SIC level. In cases where reporting at greater industry detail does not violate disclosure laws, the State DOL has been extremely cooperative in providing unpublished data for certain industries. Disclosure provisions of the Connecticut Unemployment Insurance Law prevented the State DOL from supplying data for SIC 385.

The data reported in this section for SIC 385 come from two principal sources: the 1972 Census of Manufactures, Area Series[3], and County Business Patterns--both publications of the U. S. Department of Commerce, Bureau of the Census. As explained in the job market analysis for the Somers Furniture Shop, these figures--particularly the establishment counts--should be viewed as approximations, since misclassification of very small firms is likely. However, comparison with listings in SIC 385 in the Connecticut State Industrial Directory for recent years indicates that these Bureau of the Census figures are reasonably accurate.

Where more aggregated data (i.e., SIC 38) are shown, the reader is cautioned to remember that these data include establishments engaged in the manufacture of engineering instruments, medical instruments, photographic equipment, timepieces, etc.

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[3] SIC 385 is not included in the Industry Series, which reports on eighty-one industry groups.

Table II-13 shows the average employment in industry group 38, for the nation and for Connecticut and two labor market areas within Connecticut (Bridgeport and Hartford; New Haven does not report employment in SIC 38).

When annual percent changes in employment are presented graphically, it can be seen that employment patterns in SIC 38 in Connecticut are more stable than those of the nation, for the years 1970-1974 (see Figures II-3 and II-4). Employment in SIC 38 in Connecticut does not appear to be subject to strong seasonal variation. For the five year period 1970-1974, maximum monthly deviation from average annual employment did not exceed 8.7 percent. The average maximum monthly deviation from annual employment average for the five year period was 4.4 percent; typical monthly deviation from annual average was less. In this five year period, employment in SIC 38 experienced a relatively abrupt decline in 1970 (first quarter employment was approximately 19,500). This lower level of employment continued until 1973, when a slight upswing began which carried into 1974; each year except 1970, however, showed fairly consistent employment totals.

Tables II-14 and II-15 show available employment data for Connecticut industries primarily engaged in the manufacture of ophthalmic goods. Table II-14 shows the number and size of such firms in 1972, as reported for Connecticut in the 1972 Census of Manufactures, Area Series. Table II-15 shows annual employment range, number of reporting firms, and distribution of employment-size class for the years 1970-1973, as reported in County

Table II-13 Employment, U.S. and Connecticut
SIC 38 - Instruments and Related Products

| | 1970 | 1971 | 1972 | 1973 | 1974 |
|---|---|---|---|---|---|
| U.S. | 287,600 | 257,700 | 266,200 | 395,200* | 524,100 |
| Connecticut | 22,470 | 18,210 | 18,300 | 18,510 | 20,270 |
| Bridgeport | 2,690 | 2,350 | 2,260 | 2,280 | 2,780 |
| Hartford | 2,400 | 2,160 | 2,120 | 2,270 | 2,370 |
| *estimated | | | | | |

Sources: U.S. Department of Labor, Bureau of Labor Statistics Employment and Earnings, United States 1901-1972, and Employment and Earnings Vol. 21, No. 11.

Connecticut Department of Labor, Monthly Report on Employment.

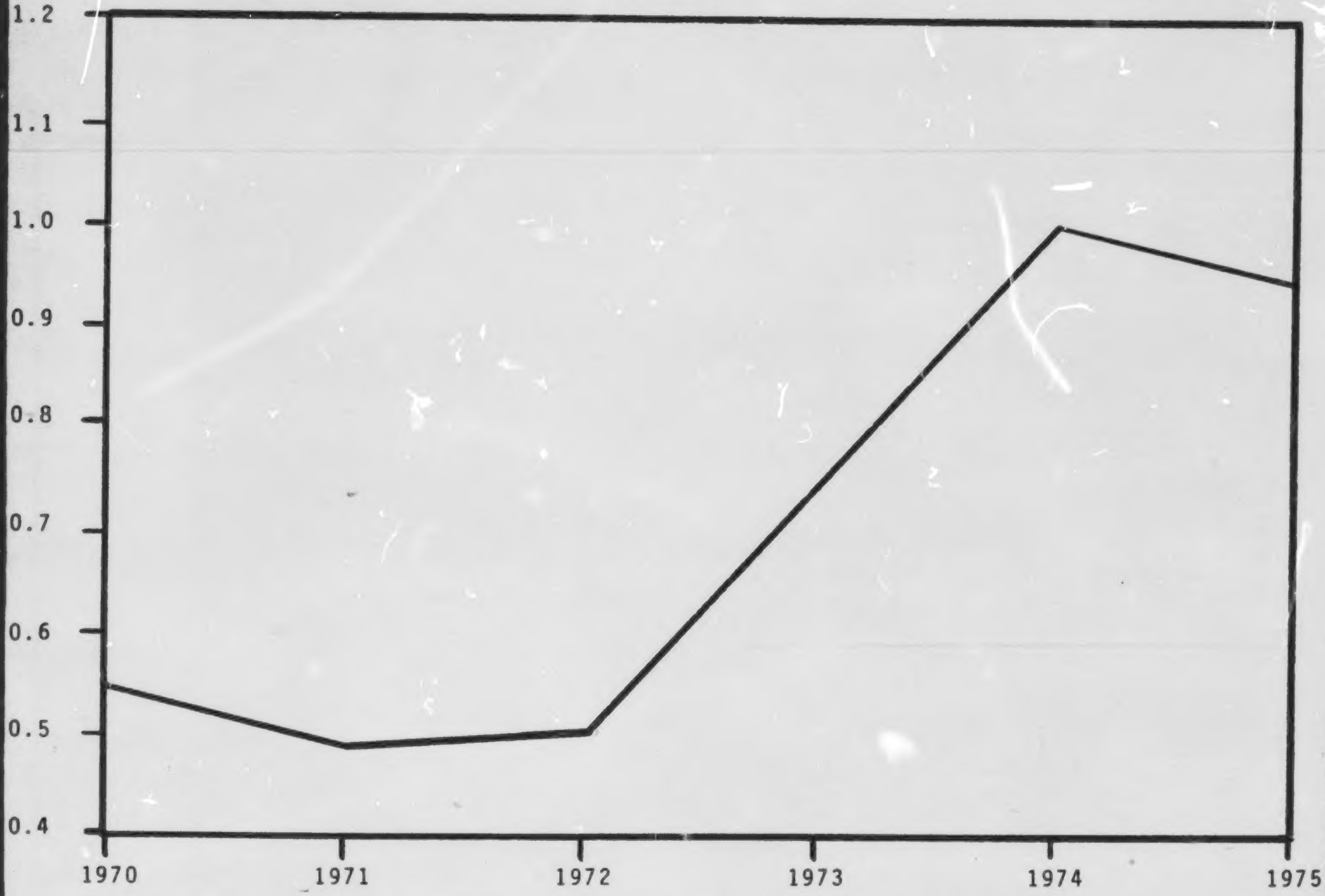

Figure II-3 Annual Percent Change in Employment, SIC 38, United States 1970-1975 (1974 = 1.0) (1973 estimated)

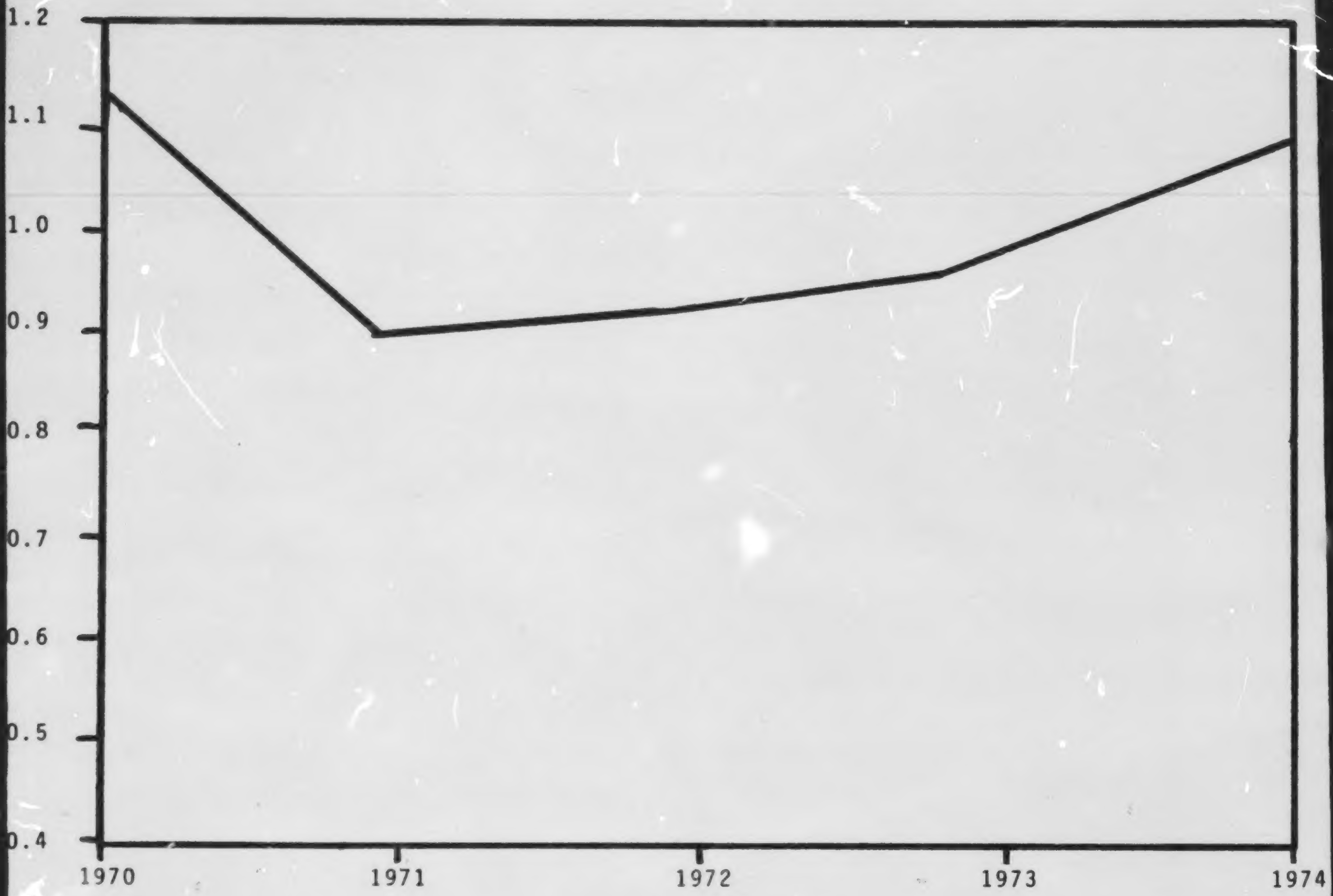

Figure II-4 Annual Percent Change in Employment, SIC 38, Connecticut 1970-1974 (1974 = 1.0)

Table II-14 Employment, Number and Size of Firm
Ophthalmic Goods - SIC 385
Connecticut, 1972

| Connecticut | | |
|---|---|---|
| Total Establishments | With 20 Employees or More | All Employees |
| 6 | 4 | 500-999 * |

* Disclosure laws prohibit publishing figures except employment size range.

Source: U.S. Department of Commerce, Bureau of the Census, 1972 Census of Manufacturers - Area Series.

Table II-15 Employment, Number of Firms, and Employment-Size Distribution, SIC 385, Connecticut and Hartford County, 1970-1973

SIC 385 - Ophthalmic Goods

| | Number of Employees | Total Reporting Units | No. of Reporting Units by Employment-Size Class | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | 1-3 | 4-7 | 8-19 | 20-49 | 50-99 | 100-249 | 250-499 | 500 or More |
| Connecticut | | | | | | | | | | |
| 1973 | 350-748* | 2 | - | - | - | - | - | 1 | 1 | - |
| 1972 | 350-748* | 2 | - | - | - | - | | 1 | 1 | - |
| 1971 | 350-748* | 2 | - | - | - | - | - | 1 | 1 | - |
| 1970 | 451-1001 | 3 | 1 | - | - | - | - | - | 2 | - |
| Hartford Co. | | | | | | | | | | |
| 1973 | 100-249* | 1 | - | - | - | - | - | - | 1 | - |
| 1972 | 100-249* | 1 | - | - | - | - | - | - | 1 | - |
| 1971 | 100-249* | 1 | - | - | - | - | - | - | 1 | - |
| 1970 | 100-249* | 1 | - | - | - | - | - | - | 1 | - |

* Disclosure laws prohibit publishing figures except size range.

Source: U.S. Department of Commerce, Bureau of the Census, County Business Patterns--Connecticut, 1970-1973.

Business Patterns for Connecticut and Hartford County (no firms are reported in SIC 385 for Fairfield County, which includes Bridgeport, or for New Haven County).

There is no explanation why the Census of Manufactures Area Series reports six firms in Connecticut producing ophthalmic goods in 1972 when County Business Patterns shows only two. Presuming that reporting requirements are similar for both surveys, one can only conclude that industry classification procedures differed. However, it is clear that there are very few establishments whose main activity is the production of ophthalmic goods, and that those firms typically employ between 100 and 500 workers. The 1976 Connecticut State Industrial Directory, which is not constrained by disclosure laws insofar as no payroll data are reported, lists five firms in SIC 385 in Connecticut, two in Danbury, and one each in Hartford, New Haven, and Putnam. These firms employ, respectively, 70, 19, 7, 3, and 400 workers. Judging from directories published in the past few years, the number of firms in SIC 385 has not changed very much recently. The presence of two major optical labs in nearby Worcester, Massachusetts and Providence, Rhode Island acts to decrease the demand for lab services within Connecticut.

Personal communication with the Connecticut State Commission of Opticians (which grants licenses for optical labs as well as for practicing opticians) suggests that there are now more optical labs in Connecticut than the Census reports or Industrial Directory indicate. A staff member of the Commission of Opticians reported that since

January, 1976, the Commission has issued licenses to nine new establishments which both process and sell eyeglasses, and has several license applications currently in process.

Establishments which sell as well as process eyeglasses may be classified in retail industry codes. In Connecticut, optical labs by law may not be affiliated with doctors' offices, however.

The theory that misclassification or differing major production activity accounts for an underestimate of optical labs is given some credence by the fact that no establishments in SIC 385 are reported for Fairfield and New Haven Counties, but that occupational employment counts (based on the 1970 Census of the Population) in both the Bridgeport and New Haven labor market areas show employment figures for opticians, lens grinders and polishers.

### (3) Employment in Optician, Lens Grinder and Polisher Trade

The Employment Security Division of the Connecticut Labor Department has prepared employment projections, based on 1970 Census data, to serve as indicators of occupational trends in the State. In Table II-16, projected employment changes are shown for the State and for three labor market areas (Bridgeport, Hartford, and New Haven) for the occupation category "opticians, lens grinders and polishers".

By comparison, the Occupational Outlook Handbook in Brief, 1974-1975 Edition (U. S. Bureau of Labor Statistics)

Table II.16 Projected Employment Changes - Connecticut and Three Labor Market Areas

| | 1970 | 1980 | Change, 1970-1980 | | Deaths and Retirements 1970-1980 | Total Manpower Needs, 1970-1980 |
|---|---|---|---|---|---|---|
| | | | % | Net | | |
| **CONNECTICUT** | | | | | | |
| Total, All Occupations | 1,265,100 | 1,432,130 | 13.2 | 167,030 | 512,180 | 679,210 |
| Craftsmen | 181,930 | 189,350 | 4.1 | 7,420 | 39,520 | 46,940 |
| Opticians, Lens Grinders and Polishers | 580 | 660 | 13.8 | 80 | 220 | 300 |
| **BRIDGEPORT** | | | | | | |
| Total, All Occupations | 163,400 | 177,760 | 8.8 | 14,360 | 63,230 | 77,590 |
| Craftsmen | 24,930 | 24,900 | -0.1 | -30 | 5,000 | 4,970 |
| Opticians, Lens Grinders and Polishers | 70 | 80 | 14.3 | 10 | 20 | 30 |
| **HARTFORD** | | | | | | |
| Total, All Occupations | 289,500 | 335,730 | 16.0 | 46,230 | 120,060 | 166,290 |
| Craftsmen | 38,640 | 40,730 | 5.4 | 2,090 | 8,010 | 10,100 |
| Opticians, Lens Grinders and Polishers | 130 | 160 | 23.1 | 30 | 40 | 70 |
| **NEW HAVEN** | | | | | | |
| Total, All Occupations | 155,100 | 168,010 | 8.3 | 12,910 | 61,550 | 74,460 |
| Craftsmen | 19,260 | 19,320 | 0.3 | 60 | 3,710 | 3,770 |
| Opticians, Lens Grinders and Polishers | 40 | 40 | 0.0 | 0 | 10 | 10 |

Source: Connecticut Department of Labor, Occupational Outlook, 1970-1980.

estimates national employment of dispensing opticians and optical mechanics at 30,000 in 1972, with average annual openings numbering 2,000 and prospects for "very rapid employment growth."

From Table II-16, it appears that projected manpower needs for opticians in the period 1970-1980 are moderate, with a large proportion of openings due to replacement openings. If the Connecticut Department of Labor's projections accurately reflect the geographic distribution of employment for opticians, the New Haven labor market area looks particularly unpromising for job opportunities.

### (4) Wages in the Optician, Lens Grinder and Polisher Trade

Disclosure laws prohibit the publication of wage data for Connecticut firms classified in SIC code 385. Nor has the U. S. Bureau of Labor Statistics published an Industry Wage Survey for SIC 385. Average hourly wages for production and related workers in Instruments and Related Products Industries (SIC 38) are available. However, because opticianry is a highly skilled trade requiring many years of training and above-average aptitude, wages reported for production workers in SIC 38 are not likely to reflect opticians' earnings accurately. Therefore, no wage information for SIC 38 in Connecticut is listed here.

### (5) Skill Requirements and Opportunity for Advancement

An Optician trainee must, at a minimum, possess a high school education and above-average ability in mathematics and science, as well as good manipulative skills. There are no schools for opticians in Connecticut, and most opticians learn their trade under licensed opticians in apprentice training programs. At least four years of training are required to become a licensed optician, and three years' training to become a mechanical optician (sometimes referred to as a licensed optician apprentice or trainee).

Once this training is acquired and a license obtained, opportunity for advancement depends primarily on experience and/or entrepreneurship. No further formal training is necessary, beyond keeping abreast of new developments in the field. The Dictionary of Occupational Trade Titles (DOT) indicates that opticianry skills are not directly transferrable to other trades.

### (6) Industry Characteristics

Judging from available information, there are a small number of medium-sized firms in Connecticut whose primary business activity is the production of ophthalmic goods. The State Commission of Opticians reports a larger number of licensed labs; these may be attached to some other industry group (retail trade, for example) and therefore not reported in SIC 385, ophthalmic goods, or they may be too recently licensed to be counted in published statistics. As of the 1970 Census, Connecticut firms employed nearly 600 opticians, lens grinders and polishers.

A dispensing optician must be licensed by the State Commission of Opticians. In order to take a licensing exam, an applicant must be recognized by the Commission as an apprentice. Recognition as an apprentice is conditioned on training under a licensed optician in a licensed shop. Currently, the Somers optical lab cannot be licensed because its function is training rather than processing/dispensing. Thus an ex-offender who received apprentice training at Somers optical lab would have to receive further training upon release, this time at a licensed shop under a licensed optician, before applying to take a licensing exam.

Connecticut legislation currently includes a statutory provision that conditions the granting of optician, optician assistant, optician-mechanical, and optician-mechanical assistant licenses on such grounds as the applicant possessing a good moral character.[4] License application forms ask the applicant to indicate whether he or she has ever been convicted of a crime or a felony in a court of law (excluding traffic offenses). These conditions present a major obstacle to ex-offenders who have received training to become opticians and who wish to find employment in the field. Until the statutory provisions are eliminated or at least clarified, there is little chance that ex-offenders will find employment as opticians in

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[4] Laws, Licenses and the Offender's Right to Work. National Clearinghouse on Offender Employment Restrictions, American Bar Association, Washington, D.C., 1973. See also, General Statutes of Connecticut, Chapter 381, Sec. 20-146 and Sec. 20-154.

Connecticut. With a limited number of available annual job openings for opticians, the desirability of focusing initial efforts on the removal of these particular legislative restrictions is debatable.

### c. Somers Dental Laboratory

### (1) Introduction

The Dental Laboratory at Somers is engaged exclusively in the production of dentures and dental plates for inmates at the institution. Intra-institutional demand for dentures and plates is not sufficient to maintain a normal rate of productivity in the shop; therefore, the shop's emphasis rests as much (or more) on training as production. The Dental Lab is the site of an 8,000 hour apprentice training program established by the Apprentice Training Division, Connecticut Department of Labor.

Dental laboratories are discretely classified, according to the Standard Industrial Classification Manual (1972) as SIC 8072. The larger SIC group 80 identifies medical and other health services, i.e., offices of physicians and surgeons (801), offices of dentists (802), offices of osteopathic physicians (803), offices of other health practitioners (804), nursing and personal care facilities (805), hospitals (806), medical and dental laboratories (807), outpatient care facilities (808), and health and allied services not elsewhere classified (809).

The trade learned and practiced in the Somers Dental Lab corresponds to the occupational category "dental lab technician", a craft trade, as defined by the Bureau of the Census.

### (2) Employment in Dental Laboratories

The Connecticut State Department of Labor publishes employment data for all health services as a whole. This industry category, which includes M.D.'s, all hospital employees, etc., bears so little relation to employment in dental laboratories *per se* that no employment data for SIC 80 will be presented here.

The only source of published industry employment data which reports employment for SIC 8072, dental labs, is *County Business Patterns*, an annual publication of the U. S. Department of Commerce, Bureau of the Census. Even *County Business Patterns* data are approximations due to classification procedures which can be inaccurate in the case of very small firms, and which identify a firm by its major business activity alone.

Table II-17 shows employment data for Connecticut establishments primarily engaged in making dentures and artificial teeth to order for the dental profession, as reported in *County Business Patterns*. Comparisons with the number of such firms listed in Connecticut telephone directories indicate that the Bureau of Census counts are, in fact, realistic estimates.

Roughly two-thirds of these labs employ fewer than four workers; very few employ more than eight, and labs employing more than twenty are extremely rare. Fairfield, Hartford and New Haven counties each support approximately twenty establishments whose major business activity is the production of dentures and dental plates.

Table II-17 Employment, Number of Firms, and Employment-Size Distribution, SIC 8072, Connecticut and Selected Counties, 1970-1973.

SIC 8972 - Dental Laboratories

| | No. of Employees | Total Reporting Units | No. of reporting units, by employment-size class | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | 1-3 | 4-7 | 8-19 | 20-49 | 50-99 | 100-249 | 250-499 | 500 or more |
| Connecticut | | | | | | | | | | |
| 1973 | 281 | 68 | 40 | 19 | 8 | 1 | - | - | - | - |
| 1972 | 254 | 63 | 39 | 16 | 7 | 1 | - | - | - | - |
| 1971 | 338 | 69 | 45 | 12 | 9 | 2 | 1 | - | - | - |
| 1970 | 328 | 72 | 50 | 14 | 5 | 2 | 1 | - | - | - |
| Fairfield Co. | | | | | | | | | | |
| 1973 | 96 | 21 | 12 | 7 | 1 | 1 | - | - | - | - |
| 1972 | 96 | 19 | 11 | 6 | 1 | 1 | - | - | - | - |
| 1971 | 97 | 23 | 17 | 3 | 2 | 1 | - | - | - | - |
| 1970 | 94 | 22 | 17 | 3 | 1 | 1 | - | - | - | - |
| Hartford Co. | | | | | | | | | | |
| 1973 | 90 | 18 | 9 | 5 | 4 | - | - | - | - | - |
| 1972 | 73 | 16 | 7 | 6 | 3 | - | - | - | - | - |
| 1971 | 152 | 16 | 5 | 4 | 6 | - | 1 | - | - | - |
| 1970 | 153 | 17 | 6 | 6 | 4 | - | 1 | - | - | - |
| New Haven Co. | | | | | | | | | | |
| 1973 | 59 | 16 | 10 | 4 | 2 | - | - | - | - | - |
| 1972 | 60 | 16 | 11 | 2 | 3 | - | - | - | - | - |
| 1971 | 62 | 18 | 13 | 3 | 1 | 1 | - | - | - | - |
| 1970 | 58 | 20 | 16 | 3 | - | 1 | - | - | - | - |

Source: U.S. Department of Commerce, Bureau of the Census. County Business Patterns -- Connecticut, 1970 - 1973

The Connecticut Department of Labor was kind enough to provide unpublished employment data for SIC 807, medical and dental labs. Table II-18 shows average employment and number of reporting firms for SIC 807. This represents the greatest level of detail available from the State Department of Labor. (Employment in SIC 807 is not routinely reported for the U. S.)

### (3) Employment of Dental Lab Technicians

In 1974 and 1975, the Employment Security Division of the Connecticut Labor Department prepared occupational employment projections, based on 1970 Census data, to serve as indicators of occupational trends in the State. In Table II-19, projected employment changes are shown for the State and for three labor market areas (Bridgeport, Hartford, and New Haven) for the occupational category "dental lab technician." Because classification and reporting procedures differ, these figures are not directly comparable to industrial employment statistics shown in County Business Patterns.

The outlook for job openings for dental lab technicians in Connecticut is not promising. By comparison, the 1974-1975 edition of The Occupational Outlook Handbook in Brief (U. S. Bureau of Labor Statistics) estimates 2,000 average annual openings for dental lab technicians for the nation as a whole, and predicts "very good employment prospects for experienced technicians" and "very favorable opportunities for recent graduates of approved training programs"

What is true for the nation as a whole does not seem to be the case in Connecticut. The New Haven labor market area shows particularly poor prospects for dental lab technicians.

Table II-18 Average Employment, SIC 807, Medical and Dental Labs, Connecticut, 1970-1975 (March)

| | 1970 | 1971 | 1972 | 1973 | 1974 | 1975 |
|---|---|---|---|---|---|---|
| Employment | 662 | 672 | 763 | 859 | 980 | 1043 |
| # Reporting Units | 124 | 127 | 131 | 132 | 136 | 140 |

Source: Unpublished, Connecticut Department of Labor, Research and Information Division.

## Table II-19 Projected Employment Changes, Connecticut and Three Labor Market Areas

| | 1970 | 1980 | Change, 1970-1980 | | Deaths and Retirements 1970-1980 | Total Manpower Needs 1970-1980 |
|---|---|---|---|---|---|---|
| | | | % | Net | | |
| **Connecticut** | | | | | | |
| Total, All Occupations | 1,265,100 | 1,432,130 | 13.2 | 167,030 | 512,180 | 679,210 |
| Craftsmen | 181,930 | 189,350 | 4.1 | 7,420 | 39,520 | 46,940 |
| Dental Lab Tech. | 410 | 430 | 4.9 | 20 | 120 | 140 |
| **Bridgeport** | | | | | | |
| Total, All Occupations | 163,400 | 177,760 | 8.8 | 14,360 | 63,230 | 77,590 |
| Craftsmen | 24,930 | 24,900 | -0.1 | -30 | 5,000 | 4,970 |
| Dental Lab Tech. | 50 | 50 | 0.0 | 0 | 10 | 10 |
| **Hartford** | | | | | | |
| Total, All Occupations | 289,500 | 335,730 | 16.0 | 46,230 | 120,060 | 166,290 |
| Craftsmen | 38,640 | 40,730 | 5.4 | 2,090 | 8,010 | 10,100 |
| Dental Lab Tech. | 110 | 110 | 0.0 | 0 | 20 | 20 |
| **New Haven** | | | | | | |
| Total, All Occupations | 155,100 | 168,010 | 8.3 | 12,910 | 61,550 | 74,460 |
| Craftsmen | 19,260 | 19,320 | 0.3 | 60 | 3,710 | 3,770 |
| Dental Lab Tech. | 40 | 30 | -25.0 | -10 | 0 | -10 |

Source: Connecticut Department of Labor, Occupational Outlook, 1970-1980

### (4) Wages of Dental Lab Technicians

There are no published wage data showing earnings for dental lab technicians in the State of Connecticut. The Research and Information Division of the State Department of Labor has been kind enough to furnish earnings data for employees in SIC 807, medical and dental labs combined. Average hourly wages in SIC 807 are shown in Table II-20, for the period 1971-1975. Workers in medical and dental labs earn substantially more than do production workers in manufacturing as a whole.

A staff member at the Apprentice Training Division, Connecticut Department of Labor, informed ECON that starting wages for dental lab technician trainees vary from employer to employer, but are rarely as low as minimum wage. In fact, the Division is reluctant to make contracts on behalf of dental lab trainee clients for wages under $2.50 an hour.

### (5) Skill Requirements and Opportunity for Advancement

The apprentice training program for dental lab technicians at Somers involves some 8,000 hours of training. Manual dexterity is required of trainees, as is a high school education, whether a trainee is in the Somers program or working on the outside. A high school diploma is not a prerequisite to training, but trainees in the free world who lack a diploma are expected to finish their education during the course of their apprenticeship.

Dental lab technicians are not unionized; in this case the term "apprentice" is used in a figurative sense to denote trainee status. Opportunity for advancement depends

Table II-20 Average Hourly Earnings, Connecticut

|  | Production & Related Workers Total Manufacturing | Medical & Dental Labs-SIC 807 |
|---|---|---|
| 3rd quarter, 1975 | $ 4.83 | $ (NA) |
| " " , 1974 | 4.51 | 5.51 |
| " " , 1973 | 4.19 | 4.70 |
| " " , 1972 | 3.90 | 5.04 |
| " " , 1971 | 3.44 | 4.81 |

Source: Connecticut Department of Labor, Report on Earnings, supplemented with unpublished data from the Research and Information Division.

primarily on experience and/or entrepreneurship.

According to the Dictionary of Occupational Titles (DOT), the skills of a dental lab technician may be directly applied to other trades, such as orthodontic technician, or hearing aid inspector. In general, however, there are not many other occupations which share the same DOT code number and Worker Traits group with "dental lab technician."

### (6) Industry Characteristics

Dental labs in Connecticut are typically small shops, employing fewer than four workers. In the major metropolitan areas in Connecticut there are likely to be about twenty establishments whose predominant business activity is the production of dentures and artificial teeth to order.

Employment data indicate that, in Connecticut, this industry evidences little or no growth. On the other hand, dental lab technicians are not licensed or union-affiliated, so there seem to be few of the more overt barriers to employment of ex-offenders in this occupation.

### d. Somers Small Engine Repair and Typewriter Repair

#### (1) Introduction

The Small Engine Repair Shop is primarily a vocational program, with little emphasis on service due to space, market and facilities limitations. The vocational program offers instruction in the repair of small, 2 and 4 stroke internal combustion engines, such as outboards, rotary engines, motorcycle engines, snowblowers, snowmobile engines, and lawn mowers. In January, 1976, the Small Engine Repair program at Somers was approved as a "single-skill" apprentice training program by the Apprentice Training Division, Connecticut State Department of Labor. The Typewriter Repair Shop trains inmates in repair and servicing of both electric and manual typewriters.

Both small engine and typewriter repair are classified within SIC 76, Miscellaneous Repair Services. SIC 76 includes: electrical repair shops; watch, clock, and jewelry repair; reupholstery and furniture repair; and miscellaneous repair shops and related services. Small engine and typewriter repair are part of the last category, and are classified at the 4-digit level as SIC 7699, Repair Shops and Related Services not elsewhere classified. Aggregating at the 3-digit (769) level introduces welding repair and armature rewinding shops.

Just as there are no discrete industry classifications for small engine or typewriter repair, there are no specific occupational titles used by the Bureau of the Census to identify small engine and typewriter repairmen. Such repairmen are categorized as "other mechanics and repairmen", a group which includes all mechanics and repairmen except those in: air conditioning, aircraft, automotive, data processing machine, farm implement, heavy equipment, household appliance, loom, radio and television, and railroad repair.

The reader is advised that even the most detailed classifications include a myriad of repair services other than small engine and typewriter repair, so that employment figures should be interpreted as approximations.

### (2) Employment In Miscellaneous Repair Shops in Connecticut

The Connecticut State Department of Labor publishes employment data for service industries as a group; these data bear virtually no relation to employment in repair shops. The only published source of industry employment data which reports employment for SIC 7699 is *County Business Patterns*, an annual publication of the U. S. Department of Commerce, Bureau of the Census. Even *County Business Patterns* data are approximative, due to classification procedures which can be inaccurate in the case of firms with less than ten employees and which identify a firm by its major business activity alone (so that repair shops connected to retail outlets, for example, would not be counted among miscellaneous repair shops). However, comparisons with the number of such firms listed in Connecticut telephone directories indicate that the Bureau of Census counts are, in fact, realistic estimates.

Table II-21 shows employment data for Connecticut establishments primarily engaged in providing miscellaneous repair services, not elsewhere classified, as reported in County Business Patterns.

From the statistics shown in Table II-21, it is evident that the number of establishments in SIC 7699 is relatively stable. Fairfield, Hartford, and New Haven Counties account for approximately 88 percent of all Connecticut firms providing miscellaneous repair services, not elsewhere classified. The vast majority of these firms employ fewer than 20 workers; indeed, more than half of the firms have only one to three employees.

SIC 7699 includes the following types of specialized repair services: bicycle repair, leather goods repair, lock and gun repair, musical instrument repair, business machine (exc. electrical) repair, septic tank cleaning, farm machinery repair, furnace cleaning, knife sharpening and repair, motorcycle repair, scale repair, tank truck cleaning, taxidermists, tractor repair, and typewriter repair. Clearly, employment figures for SIC 7699 cannot provide much insight into employment of small engine or typewriter repairmen in Connecticut.

The Connecticut Department of Labor was kind enough to provide unpublished employment data for SIC 769. Table II-22

## Table II-21 Employment, Number of Firms, and Employment-Size Distribution, SIC 7699, Connecticut and Selected Counties, 1970-1973

SIC 7699 - Miscellaneous Repair Services, not elsewhere classified

| | Number of Employees | Total Reporting Units | No. of Reporting Units by Employment-Size Class | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | 1-3 | 4-7 | 8-19 | 20-49 | 50-99 | 100-249 | 250-499 | 500 or more |
| Connecticut | | | | | | | | | | |
| 1973 | 1,108 | 208 | 127 | 39 | 33 | 9 | - | - | - | - |
| 1972 | 1,224 | 191 | 119 | 36 | 24 | 9 | 1 | 2 | - | - |
| 1971 | 988 | 187 | 108 | 42 | 28 | 9 | - | - | - | - |
| 1970 | 1,028 | 192 | 107 | 45 | 32 | 7 | - | 1 | - | - |
| Fairfield Co. | | | | | | | | | | |
| 1973 | 351 | 72 | 47 | 12 | 10 | 3 | - | - | - | - |
| 1972 | 277 | 61 | 39 | 13 | 6 | 3 | - | - | - | - |
| 1971 | 295 | 65 | 38 | 14 | 12 | 1 | - | - | - | - |
| 1970 | 318 | 73 | 44 | 15 | 13 | 1 | - | - | - | - |
| Hartford Co. | | | | | | | | | | |
| 1973 | 289 | 49 | 20 | 17 | 10 | 2 | - | - | - | - |
| 1972 | 351 | 44 | 23 | 10 | 8 | 2 | - | 1 | - | - |
| 1971 | 251 | 47 | 22 | 17 | 5 | 3 | - | - | - | - |
| 1970 | 268 | 44 | 19 | 13 | 8 | 4 | - | - | - | - |
| New Haven Co. | | | | | | | | | | |
| 1973 | 319 | 53 | 37 | 4 | 8 | 4 | - | - | - | - |
| 1972 | 455 | 53 | 36 | 6 | 5 | 4 | 1 | 1 | - | - |
| 1971 | 333 | 47 | 28 | 7 | 8 | 4 | - | - | - | - |
| 1970 | 318 | 46 | 26 | 10 | 7 | 2 | - | 1 | - | - |

Source: U. S. Department of Commerce, Bureau of the Census. Counties Business Patterns - Connecticut, 1970-73.

Table II-22 Average Employment, SIC 769, Connecticut, 1970-1975 (March)

| | 1970 | 1971 | 1972 | 1973 | 1974 | 1975 |
|---|---|---|---|---|---|---|
| Employment | 837 | 840 | 887 | 969 | 1030 | 1088 |
| Number Reporting Units | 217 | 235 | 235 | 250 | 267 | 303 |

Source: Unpublished, Connecticut Department of Labor, Research and Information Division.

shows average employment and number of reporting firms in Connecticut in SIC 769 (which includes welding repair and armature rewinding as well as other miscellaneous repair and related services). This represents the greatest level of detail available from the State Department of Labor. As reporting requirements are different than those used by the U.S. Department of Commerce, employment and number of firms are not directly comparable to statistics reported in County Business Patterns. (Employment in SIC 769 is not routinely reported for the United States.)

In 1970-1975, annual percent change in employment in SIC 769 in Connecticut has averaged 5.4, although, as can be seen from Table II-22, employment growth has been erratic.

### (3) Employment in Other Mechanic, Repairmen Trades

In 1974 and 1975, the Employment Security Division of the Connecticut Labor Department prepared occupational employment projections, based on 1970 Census data, to serve as indicators of occupational trends in the State. In Table II-23, projected employment changes are shown for the State and for three labor market areas (Bridgeport, Hartford, and New Haven) for the occupational category "other mechanics, repairmen", which includes small engine and typewriter repairmen.

By comparison with the other trades represented at Somers Correctional Institution, there are fewer job openings projected for not-elsewhere-classified mechanics and repairmen than for printing trades craftsmen. On the

Table II-23 Projected Occupational Employment Changes, Connecticut and Three Labor Market Areas

|  | 1970 | 1980 | Change, 1970-1980 |  | Deaths and Retirements 1970-1980 | Total Manpower Needs, 1970-1980 |
|---|---|---|---|---|---|---|
|  |  |  | % | Net |  |  |
| CONNECTICUT | 1,265,100 | 1,432,130 | 13.2 | 167,030 | 512,180 | 679,210 |
| Total, All Occupations | 1,265,100 | 1,432,130 | 13.2 | 167,030 | 512,180 | 679,210 |
| Craftsmen | 181,930 | 189,350 | 4.1 | 7,420 | 39,520 | 46,940 |
| All Mechanics | 38,800 | 46,410 | 19.6 | 7,610 | 7,580 | 15,190 |
| Other Mechanics and Repairmen | 3,200 | 3,590 | 12.2 | 390 | 770 | 1,160 |
| BRIDGEPORT |  |  |  |  |  |  |
| Total, All Occupations | 163,400 | 177,760 | 8.8 | 14,360 | 63,230 | 77,590 |
| Craftsmen | 24,930 | 24,900 | -0.1 | -30 | 5,000 | 4,970 |
| All Mechanics | 4,960 | 5,570 | 12.3 | 610 | 880 | 1,490 |
| Other Mechanics and Repairmen | 420 | 440 | 4.8 | 20 | 90 | 110 |
| HARTFORD |  |  |  |  |  |  |
| Total, All Occupations | 289,500 | 335,730 | 16.0 | 46,230 | 120,060 | 166,290 |
| Craftsmen | 38,640 | 40,730 | 5.4 | 2,090 | 8,010 | 10,100 |
| All Mechanics | 8,940 | 10,420 | 16.6 | 1,480 | 1,670 | 3,150 |
| Other Mechanics and Repairmen | 750 | 810 | 8.0 | 60 | 170 | 230 |
| NEW HAVEN |  |  |  |  |  |  |
| Total, All Occupations | 155,100 | 168,010 | 8.3 | 12,910 | 61,550 | 74,460 |
| Craftsmen | 19,260 | 19,320 | 0.3 | 60 | 3,710 | 3,770 |
| All Mechanics | 4,670 | 5,100 | 9.2 | 430 | 810 | 1,240 |
| Other Mechanics and Repairmen | 420 | 460 | 9.5 | 40 | 100 | 140 |

Source: Connecticut Department of Labor, Occupational Outlook 1970-1980.

other hand, the opportunities for these mechanics and repairmen are better than for opticians, dental lab technicians, or furniture trades workers.

As in the case of industry employment data, there is no indication of the proportions of small engine or typewriter repairmen in the occupation category "other mechanics, repairmen".

### (4) Wages of Small Engine and Typewriter Repairmen

There are no published wage data or central sources of wage data for small engine or typewriter repairmen. Table II-24 shows first quarter average hourly wages for workers in SIC 769, welding, armature rewinding, and miscellaneous repair services. These wages are consistently about $0.50 per hour higher than those for manufacturing production workers in general (not shown here).

### (5) Skill Requirements and Opportunity for Advancement

Small engine and typewriter repair are referred to by the Apprentice Training Division of the Connecticut Department of Labor as "single skill" programs. The training program approved for the Small Engine Repair Shop at Somers runs for 52 weeks. Typewriter repair training averages 4,000 hours. Skill requirements do not include formal education credentials; most of the training is given through "hands-on" experience. Manual dexterity and manipulative skills are required, as well as the ability to comprehend manufacturers' service manuals.

Opportunity for advancement depends primarily on experience and/or entrepreneurship. Many small engine

Table II-24 Average Hourly Wages, SIC 769
Connecticut, 1970 - 1975
(40-hour workweek assumed)

SIC 769

| | |
|---|---|
| First Quarter, 1975 | $5.39 |
| First Quarter, 1974 | 4.88 |
| First Quarter, 1973 | 4.52 |
| First Quarter, 1972 | 4.23 |
| First Quarter, 1971 | 3.97 |
| First Quarter, 1970 | 3.82 |

Source: Unpublished, Connecticut State Department of Labor, Research and Information Division.

and typewriter repairmen are self-employed; others work in repair shops that provide customer service at retail outlets. There are likely to be few artificial barriers to employment for ex-offenders who are skilled in small engine or typewriter repair, as no license, union membership, or formal education prerequisites exist.

According to the Dictionary of Occupational Titles (DOT), these repair jobs involve skills that are directly transferable to many other related jobs. For example, a worker trained in typewriter repair possesses the skills required to repair at least seven other types of office machinery. A small engine mechanic can apply his or her skills to repairing, inspecting, testing and maintenance of a wide range of gasoline engines, such as automobiles, motorcycles, outboard motors, tractors, cranes, and logging and mine machinery.

### (6) Industry Characteristics

Small engine and typewriter repair shops are typically small, with less than four employees. Some shops may specialize in a particular engine or typewriter type, others may handle a variety of small engines or typewriters. In many cases, repair shops are affiliated with retail stores which sell typewriters, lawn mowers, snowmobiles, motorcycles, etc. Small engine and typewriter repairmen are not represented by national labor organizations. A license is not required to work as a small engine or typewriter repairman.

Available employment data, because of the level of aggregation, do not provide a good indication of job opportunities in small engine or typewriter repair. There are several features of these occupations--short training period, no formal education requirements, neither licensing nor union membership difficulties--which make them appear to be attractive candidates for institutional industries.

### e. Somers Furniture and Upholstery Shop

#### (1) Introduction

The Furniture and Upholstery Shop at Somers is the largest prison industry there, employing approximately seventy inmates and six staff at the time the study team first visited it. The shop produces wood or wood frame school, office, and home furnishings. There are three main functions within the shop: cabinetmaking, finishing/refinishing, and upholstery/reupholstering.

By the Standard Industrial Classification Manual definitions, the activities of the Somers Furniture and Upholstery Shop fall into the broad industrial categories coded: 243, Millwork, Plywood, and Structural Wood Members; 25, Furniture and Fixtures; and 764, Reupholstery and Furniture Repair. Because the shop at Somers produces no metal furnishings or plywood and structures, the industry groupings which are relevant to a job market analysis are only identifiable at the 4-digit SIC level within the larger 243 and 25 categories. The SIC categories which are addressed in this job market analysis are described briefly below.

- 2431 - Millwork

This industry is comprised of establishments primarily engaged in manufacturing fabricated millwork. Planing mills primarily engaged in producing millwork are included in this industry, although planing mills primarily producing standard workings or patterns of lumber are not. Until the 1972 revisions of the SIC Manual, the manufacture of custom cabinetwork, to be built in, was included in SIC 2431; it has now been transferred to SIC 2434.

- 2434 - Wood Kitchen Cabinets

This industry is comprised of establishments primarily engaged in manufacturing wood kitchen cabinets--stock line or custom--and vanities and other cabinetwork. (This category was created with the 1972 revisions.)

- 2511 - Wood Household Furniture, except Upholstered

This industry is comprised of establishments primarily engaged in manufacturing wood household furniture commonly used in dwellings. This industry also includes establishments primarily engaged in manufacturing infants' and children's wood furniture and wood outdoor furniture.

- 2512 - Wood Household Furniture, Upholstered

This industry is comprised of establishments primarily engaged in manufacturing upholstered furniture on wood frames.

- 2517 - Wood Television, Radio, Phonograph, and Sewing Machine Cabinets

(This category was added with the 1972 revision of the SIC Manual. Previously, all establishments in this category were included in 2511.) This industry is comprised of establishments primarily engaged in manufacturing wooden cabinets for radios, phonographs, hi-fi's, televisions, and sewing machines.

- 2521 - Wood Office Furniture

This industry is comprised of establishments primarily engaged in manufacturing wood office furniture, whether padded, upholstered, or plain.

- 2531 - Public Building and Related Furniture

This industry is comprised of establishments primarily engaged in manufacturing furniture for schools, theaters, assembly halls, churches, and libraries. Also included in this category are establishments primarily engaged in manufacturing seats for public conveyances and seats for automobiles and aircraft.

- 2541 - Wood Partitions, Shelving, Lockers, and Office and Store Fixtures

This industry is comprised of establishments primarily engaged in manufacturing wood shelving, lockers, office and store fixtures, prefabricated partitions, plastic laminated fixture tops, and related fabricated products.

- 764 - Reupholstery and Furniture Repair

This industry is comprised of establishments primarily engaged in the repair and reupholstery of furniture.

Changes made in classification codes with the 1972 revision of the SIC manual affect categories 2511 and 2512. Establishments primarily engaged in the manufacture of wood kitchen cabinets were previously included in 2511, but in the

1972 definitions were moved to industry 2434 (Wood Kitchen Cabinets). Similarly, establishments primarily engaged in the manufacture of wood cabinets for radios, televisions, phonographs, and sewing machines, previously included in 2511, were classified in industry 2517 in the 1972 definitions. Finally, establishments primarily engaged in the manufacture of wood frames for upholstered furniture, previously classified in 2512, were transferred to industry 2426 (Hardwood Dimension and Flooring).

Unless otherwise noted, all establishment data reported in this chapter will be classified according to the 1967 SIC definitions.

The occupational skills required in cabinetmaking, finishing, and upholstering are varied. Relatively low-skilled cabinetmaking functions include assembly and machine operation; a highly-skilled cabinetmaker, on the other hand, can perform set-up and jig-making functions. Finishing and upholstering also incorporate a range of skill levels. Occupational employment data published at the state and local levels, however, do not indicate skill levels; occupations are classified according to Bureau of the Census definitions. The occupational categories reported in this chapter (with the exception of some specific wage data) conform to the following Census definitions: cabinetmaker; furniture and wood finisher; upholsterer; and filer, polisher, sander, buffer. The last category, it should be noted, includes operatives in metal work and other industries not directly related to wood furniture.

### (2) Employment in the Furniture and Upholstering Industries

State employment data at the 4-digit SIC level are, at best, sketchy. (Even at the national level, employment data for all the 4-digit SIC codes in question here are only published at five year intervals, in the Census of Manufactures Industry Series.) The Connecticut State Department of Labor publishes employment, hours, and earnings for major industry groups at the 2-digit SIC level. In cases where reporting at greater industry detail does not violate disclosure laws, the State DOL has been extremely cooperative in providing unpublished data for certain industries.

The data reported in this section at the 4-digit SIC level come from two principal sources: the 1972 Census of Manufactures Industry Series, and County Business Patterns. Both are publications of the U.S. Department of Commerce, Bureau of the Census. The figures reported should be viewed as approximations, in that the Census does not request report forms from firms having less than ten employees, but classifies these firms on the basis of very brief descriptions of their general activity. Inevitably, some misclassification occurs. Insofar as many Connecticut establishments in SIC's 2431, (2434), 2511, 2512, (2517), 2521, 2531, 2541, and 764 have fewer than ten employees, total establishment counts are somewhat arbitrary. The counts for establishments with 20 or more employees are more reliable than the total number of establishments. However, comparisons with the number of firms listed in Connecticut telephone directories indicate that the Bureau of Census counts are realistic estimates.

Where more aggregated data are shown, the reader is cautioned to bear in mind that these data include establishments engaged in the manufacture of metal furnishings as well as those that produce wood furnishings.

Table II-25 shows employment in the furniture and wood industry group (SIC 25) for the state of Connecticut.

The furniture and wood industries in Connecticut (taken as an aggregate industry group) are not subject to alarming seasonal variation. For the five year period 1970-1974, maximum monthly deviation from average annual employment did not exceed ten percent. The average maximum deviation from annual employment average for the five year period was 5.9 percent; typical monthly deviation from annual average was much less.

Table II-26 shows annual employment in Connecticut for the following industry groups: wood household furniture, except upholstered (SIC 2511); wood household furniture, upholstered (SIC 2512); wood partitions, shelving, etc. (SIC 2541); and reupholstery and furniture repair (SIC 764). The figures in Table II-25, being more aggregate, overstate outside employment relevant to the Somers furniture shop; conversely, figures in Table II-26 understates such employment.

Table II-25 Employment, Furniture and Wood Industries, Connecticut 1970-1974 (March, each year)

| | 1970 | 1971 | 1972 | 1973 | 1974 |
|---|---|---|---|---|---|
| Connecticut | 6,800 | 6,090 | 6,710 | 7,350 | 7,820 |

Source: Connecticut Department of Labor, Monthly Report on Employment.

Table II-26 Employment, SIC's 2511, 2512, 2541, 764 - Connecticut 1970-1975 (March, each year)

| | 1970 | 1971 | 1972 | 1973 | 1974 | 1975 |
|---|---|---|---|---|---|---|
| Connecticut | 2,760 | 2,466 | 3,029 | 3,466 | 3,453 | 4,170 |

Source: Connecticut Department of Labor, unpublished data.

When annual percent changes in employment in SIC's 2511 and 2512 are presented graphically, it can be seen that employment patterns in wood household furniture industries in Connecticut resemble those of the nation, for the years 1970-1975 (see Figures II-5 through II-8).

Table II-27 and Tables II-28 through II-34 show available employment data for Connecticut industries engaged in the manufacture or repair of wooden and upholstered school, office, or home furnishings. It is evident that these firms are but a fraction of the total in SIC 25. Table II-27 shows number and size of firms in 1972, as reported for the United States and Connecticut in the 1972 Census of Manufactures, Industry Series. Tables II-28 through II-34 indicate annual employment, number of reporting firms, and distribution of employment size class for the years 1970-1973, as reported in County Business Patterns for Connecticut, Fairfield County (which includes Bridgeport), Hartford County, and New Haven County.

From Tables II-27 through II-34, even making allowances for Census misclassification, it is evident that there are very few establishments in Connecticut which are primarily engaged in producing or repairing and reupholstering school, office or home wood furnishings. Most of these firms employ less than 20 persons.

Greatest employment concentration falls in SIC 2511, Wood Household Furniture, except Upholstered. New Haven County is the site for most Connecticut firms in SIC 2512, Upholstered Wood Household Furniture. Although all three counties have

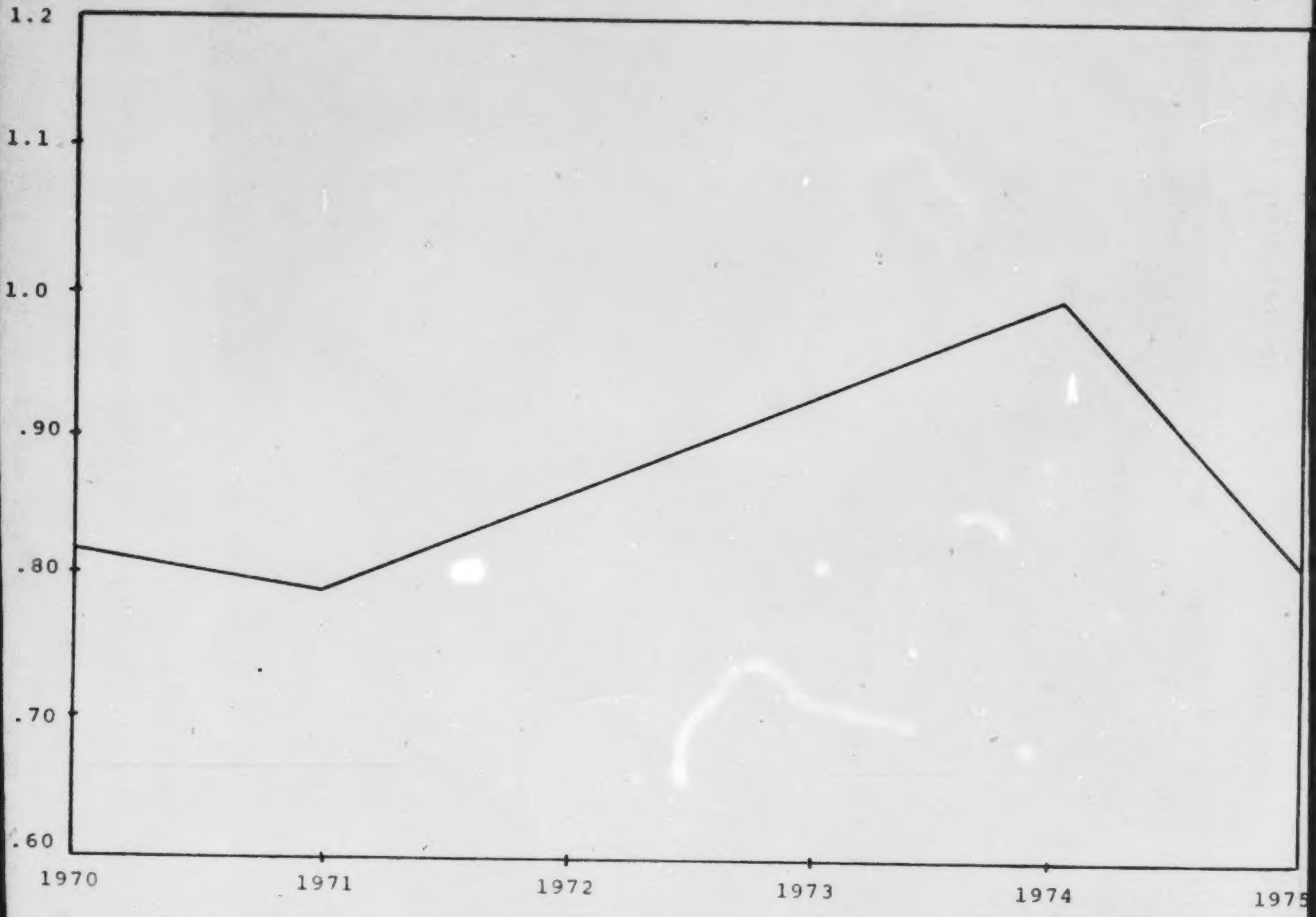

Figure II-5 Annual Percent Change in Employment SIC 2511, United States, 1970-1975 (1974 = 1.0; 1973 estimated)

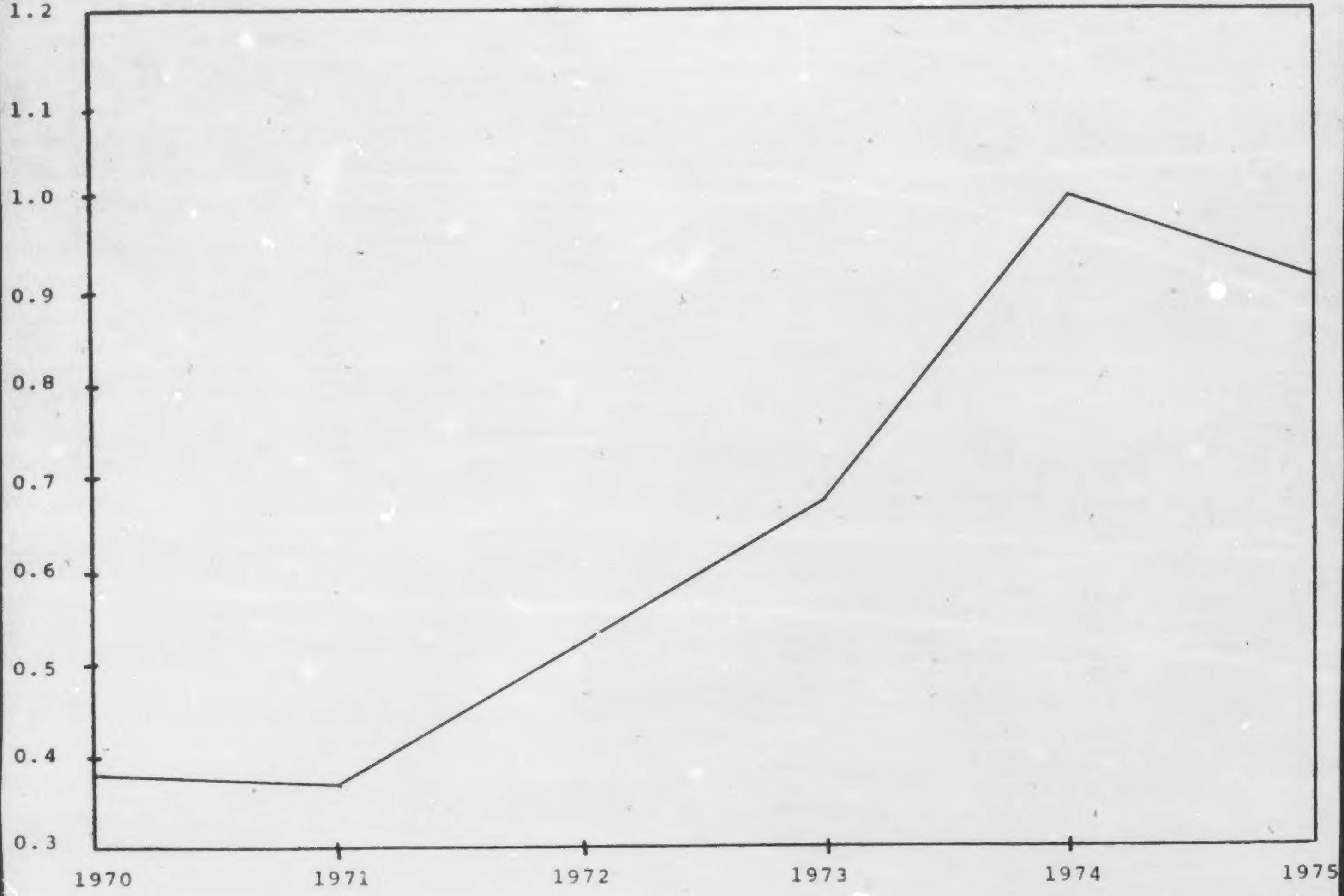

Figure II-6 Annual Percent Change in Employment SIC 2511, Connecticut 1970-1975 (1974 = 1.0)

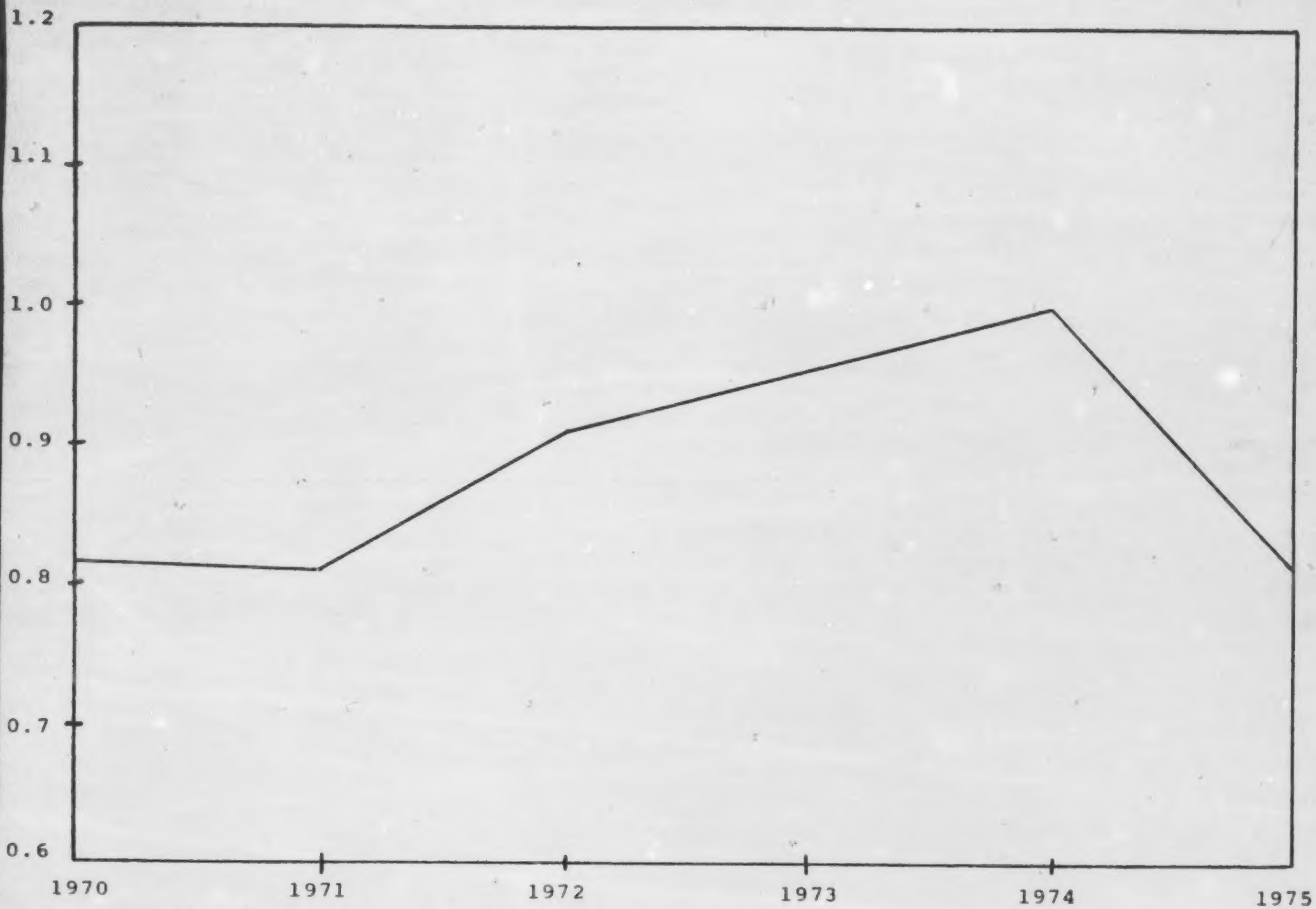

Figure II-7 Annual Percent Change in Employment SIC 2512, United States 1970-1975 (1974 = 1.0; 1973 estimated)

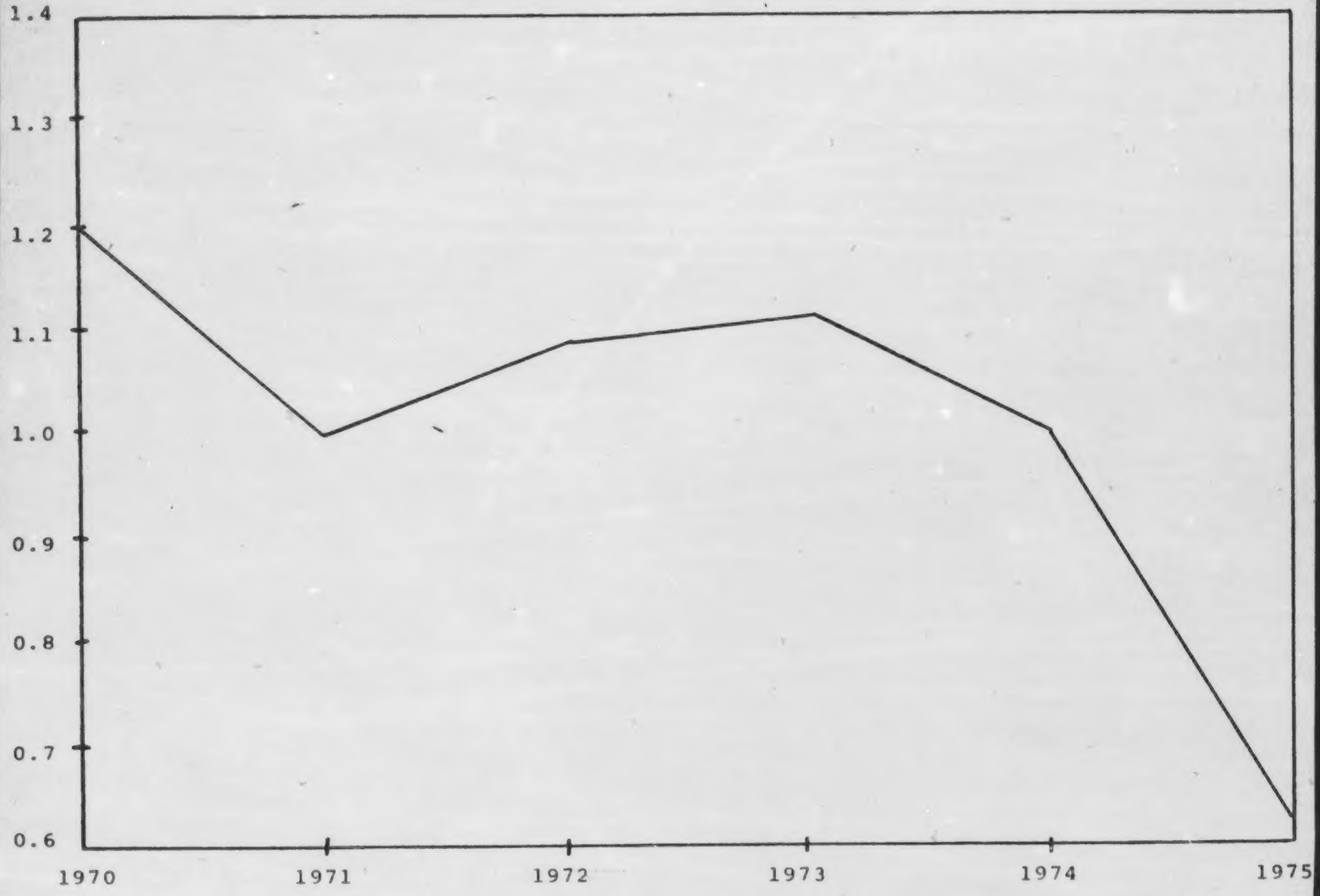

Figure II-8 Annual Percent Change in Employment SIC 2512, Connecticut 1970-1975 (1974 = 1.0)

Table II-27 Employment, Number and Size of Firms, Wood Furniture and Upholstery Industries, United States and Connecticut, 1972 (1972 SIC definitions)

| | U. S. | | | Connecticut | | |
|---|---|---|---|---|---|---|
| SIC Code | Total No. Establishments | With 20 Employees or More | All Employees | Total No. Establishments | With 20 Employees or More | All Employees |
| 2431 | 2,434 | 720 | 70,500 | 34 | 3 | 300 |
| 2434 | 1,787 | 391 | 38,500 | 31 | 4 | 300 |
| 2511 | 2,348 | 827 | 133,800 | 23 | 6 | 600 |
| 2512 | 1,308 | 770 | 92,000 | 16 | 9 | 500 |
| 2517 | 103 | 65 | 18,900 | 2 | 2 | 500-999* |
| 2521 | 240 | 104 | 11,500 | 3 | 2 | 150-249* |
| 2531 | 423 | 196 | 21,800 | 5 | 2 | 250-499* |
| 2541 | 1,502 | 412 | 31,100 | 12 | 5 | 250-499* |

*Statistics withheld to avoid disclosing figures for individual companies. For areas with 150 employees or more, employment size range is shown.

Source: U.S. Department of Commerce, Bureau of the Census, 1972 Census of Manufactures, Industry Series.

Table II-28 Employment, Number of Firms, and Employment-Size Distribution, SIC 2431, Connecticut and Selected Counties, 1970-1973

SIC 2431 - Millwork, including Wood Kitchen Cabinets

| | Number of Employees | Total Reporting Units | No. of reporting units by employment-size class | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | 1-3 | 4-7 | 8-19 | 20-49 | 50-99 | 100-249 | 250-499 | 500 or More |
| **Connecticut** | | | | | | | | | | |
| **1973** | 421 | 40 | 9 | 11 | 17 | 2 | 1 | - | - | - |
| **1972** | 409 | 37 | 10 | 10 | 13 | 3 | 1 | - | - | - |
| **1971** | 354 | 38 | 12 | 12 | 11 | 2 | 1 | - | - | - |
| **1970** | 459 | 43 | 13 | 10 | 13 | 6 | 1 | - | - | - |
| **Fairfield Co.** | | | | | | | | | | |
| **1973** | -- | - | - | - | - | - | - | - | - | - |
| **1972** | 47-106* | 10 | 3 | 3 | 4 | - | - | - | - | - |
| **1971** | 51-113* | 11 | 3 | 4 | 4 | - | - | - | - | - |
| **1970** | 87-204* | 12 | 3 | 3 | 4 | 2 | - | - | - | - |
| **Hartford Co.** | | | | | | | | | | |
| **1973** | 69-156* | 12 | 5 | 1 | 5 | 1 | - | - | - | - |
| **1972** | 68-162* | 10 | 4 | 2 | 2 | 2 | - | - | - | - |
| **1971** | -- | - | - | - | - | - | - | - | - | - |
| **1970** | -- | - | - | - | - | - | - | - | - | - |
| **New Haven Co.** | | | | | | | | | | |
| **1973** | -- | - | - | - | - | - | - | - | - | - |
| **1972** | -- | - | - | - | - | - | - | - | - | - |
| **1971** | -- | - | - | - | - | - | - | - | - | - |
| **1970** | -- | - | - | - | - | - | - | - | - | - |

*Disclosure laws prohibit publishing figures except size range.

Source: U.S. Department of Commerce, Bureau of the Census, County Business Patterns - Connecticut, 1970-1973.

**Table II-29** Employment, Number of Firms and Employment-Size Distribution, SIC 2511, Connecticut and Selected Counties, 1970-1973

SIC 2511 - Wood Household Furniture, exc. Upholstered

| | Number of Employees | Total Reporting Units | No. of reporting units by employment-size class | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | 1-3 | 4-7 | 8-19 | 20-49 | 50-99 | 100-249 | 250-499 | 500 or Mor |
| **Connecticut** | | | | | | | | | | |
| 1973 | 1,609 | 31 | 7 | 9 | 6 | 3 | 3 | 2 | - | 1 |
| 1972 | 985 | 32 | 12 | 6 | 6 | 3 | 3 | 1 | 1 | - |
| 1971 | 702 | 31 | 11 | 9 | 4 | 2 | 3 | 2 | - | - |
| 1970 | 732 | 34 | 14 | 8 | 5 | 1 | 4 | 2 | - | - |
| **Fairfield Co.** | (SIC 251) | | | | | | | | | |
| 1973 | 741 | 15 | 2 | 3 | 5 | 3 | - | 1 | 1 | - |
| 1972 | 604 | 13 | 3 | 1 | 4 | 3 | - | 1 | 1 | - |
| 1971 | 610 | 13 | 1 | 2 | 5 | 3 | - | 1 | 1 | - |
| 1970 | 663 | 19 | 6 | 2 | 5 | 3 | 2 | - | 1 | - |
| **Hartford Co.** | | | | | | | | | | |
| 1973 | 163 | 10 | 3 | 2 | 2 | 2 | 1 | - | - | - |
| 1972 | 173 | 11 | 4 | 3 | 1 | 2 | 1 | - | - | - |
| 1971 | 123 | 9 | 3 | 3 | 1 | 1 | 1 | - | - | - |
| 1970 | 147 | 9 | 3 | 3 | 1 | - | 2 | - | - | - |
| **New Haven Co.** | | | | | | | | | | |
| 1973 | 269 | 4 | - | - | 1 | - | 2 | 1 | - | - |
| 1972 | 69-121* | 4 | 1 | - | 1 | - | 2 | - | - | - |
| 1971 | 69-121* | 4 | 1 | - | 1 | - | 2 | - | - | - |
| 1970 | 117-220* | 5 | 1 | - | 2 | - | 2 | - | - | - |

*Disclosure laws prohibit publishing figures except size range.

Source: U.S. Department of Commerce, Bureau of the Census, County Business Patterns - Connecticut, 1970-1973.

## Table II-30 Employment, Number of Firms and Employment-Size Distribution, SIC 2512, Connecticut and Selected Counties, 1970-1973

### SIC 2515 - Wood Household Furniture, Upholstered

| | Number of Employees | Total Reporting Units | No. of reporting units by employment-size class | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | 1-3 | 4-7 | 8-19 | 20-49 | 50-99 | 100-249 | 250-499 | 500 or More |
| **Connecticut** | | | | | | | | | | |
| 1973 | 446 | 19 | 4 | 2 | 4 | 8 | - | 1 | - | - |
| 1972 | 563 | 21 | 2 | 4 | 3 | 9 | 3 | - | - | - |
| 1971 | 530 | 21 | 2 | 4 | 4 | 9 | 1 | 1 | - | - |
| 1970 | 580 | 22 | 3 | 2 | 6 | 8 | 2 | 1 | - | - |
| **Fairfield Co.** | | | | | | | | | | |
| 1973 | See Table II-29 ----------------------------------- | | | | | | | | | |
| 1972 | " | | | | | | | | | |
| 1971 | " | | | | | | | | | |
| 1970 | " | | | | | | | | | |
| **Hartford Co.** | | | | | | | | | | |
| 1973 | - | - | - | - | - | - | - | - | - | - |
| 1972 | 110 | 6 | 1 | 1 | 1 | 3 | - | - | - | - |
| 1971 | 109 | 6 | 1 | - | 2 | 3 | - | - | - | - |
| 1970 | 140 | 6 | 1 | - | 2 | 2 | 1 | - | - | - |
| **New Haven Co.** | | | | | | | | | | |
| 1973 | 299 | 9 | 1 | 1 | 1 | 5 | - | 1 | - | - |
| 1972 | 397 | 11 | 1 | 1 | 1 | 5 | 3 | - | - | - |
| 1971 | 372 | 11 | 1 | 1 | 2 | 5 | 1 | 1 | - | - |
| 1970 | 384 | 11 | 1 | 1 | 2 | 5 | 1 | 1 | - | - |

*Disclosure laws prohibit publishing figures except size range.

Source: U.S. Department of Commerce, Bureau of the Census, County Business Patterns - Connecticut, 1970-1973.

Table II-31 Employment, Number of Firms and Employment-Size Distribution, SIC 2521, Connecticut and Selected Counties, 1970-1973

SIC 2521 - Wood Office Furniture

| | Number of Employees | Total Reporting Units | No. of reporting units by employment-size class | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | 1-3 | 4-7 | 8-19 | 20-49 | 50-99 | 100-249 | 250-499 | 500 or More |
| **Connecticut** | | | | | | | | | | |
| 1973 | 50-99* | 1 | - | - | - | - | 1 | - | - | - |
| 1972 | 50-99* | 1 | - | - | - | - | 1 | - | - | - |
| 1971 | 50-99* | 1 | - | - | - | - | 1 | - | - | - |
| 1970 | 58-118* | 2 | - | - | 1 | - | 1 | - | - | - |
| **Fairfield Co.** | | | | | | | | | | |
| 1973 | - | - | - | - | - | - | - | - | - | - |
| 1972 | - | - | - | - | - | - | - | - | - | - |
| 1971 | - | - | - | - | - | - | - | - | - | - |
| 1970 | - | - | - | - | - | - | - | - | - | - |
| **Hartford Co.** | | | | | | | | | | |
| 1973 | - | - | - | - | - | - | - | - | - | - |
| 1972 | - | - | - | - | - | - | - | - | - | - |
| 1971 | - | - | - | - | - | - | - | - | - | - |
| 1970 | - | - | - | - | - | - | - | - | - | - |
| **New Haven Co.** | | | | | | | | | | |
| 1973 | - | - | - | - | - | - | - | - | - | - |
| 1972 | - | - | - | - | - | - | - | - | - | - |
| 1971 | - | - | - | - | - | - | - | - | - | - |
| 1970 | - | - | - | - | - | - | - | - | - | - |

*Disclosure laws prohibit publishing figures except size range.

Source: U.S. Department of Commerce, Bureau of the Census, County Business Patterns - Connecticut, 1970-1973.

Table II-32 Employment, Number of Firms and Employment-Size Distribution, SIC 253, Connecticut and Selected Counties, 1970-1973

SIC 253 - Public Building and Related Furniture

|  | Number of Employees | Total Reporting Units | No. of reporting units by employment-size class |  |  |  |  |  |  |  |
|---|---|---|---|---|---|---|---|---|---|---|
|  |  |  | 1-3 | 4-7 | 8-19 | 20-49 | 50-99 | 100-249 | 250-499 | 500 or More |
| **Connecticut** |  |  |  |  |  |  |  |  |  |  |
| 1973 | 492 | 4 | - | 1 | - | - | 2 | - | 1 | - |
| 1972 | 274-555* | 3 | - | 1 | - | 1 | - | - | 1 | - |
| 1971 | 272-552* | 4 | 2 | - | - | 1 | - | - | 1 | - |
| 1970 | 279-570* | 4 | 1 | - | 1 | 1 | - | - | 1 | - |
| **Fairfield Co.** |  |  |  |  |  |  |  |  |  |  |
| 1973 | - | - | - | - | - | - | - | - | - | - |
| 1972 | - | - | - | - | - | - | - | - | - | - |
| 1971 | - | - | - | - | - | - | - | - | - | - |
| 1970 | - | - | - | - | - | - | - | - | - | - |
|  | - | - | - | - | - | - | - | - | - | - |
| **Hartford Co.** |  |  |  |  |  |  |  |  |  |  |
| 1973 | - | - | - | - | - | - | - | - | - | - |
| 1972 | - | - | - | - | - | - | - | - | - | - |
| 1971 | - | - | - | - | - | - | - | - | - | - |
| 1970 | - | - | - | - | - | - | - | - | - | - |
| **New Haven Co.** |  |  |  |  |  |  |  |  |  |  |
| 1973 | - | - | - | - | - | - | - | - | - | - |
| 1972 | - | - | - | - | - | - | - | - | - | - |
| 1971 | - | - | - | - | - | - | - | - | - |  |
| 1970 | - | - | - | - | - | - | - | - | - | - |

*Disclosure laws prohibit publishing figures except size range.

Source: U.S. Department of Commerce, Bureau of the Census, County Business Patterns - Connecticut, 1970-1973.

Table II-33 Employment, Number of Firms and Employment-Size Distribution, SIC 2541, Connecticut and Selected Counties, 1970-1973

SIC 2541 - Wood Partitions, Shelving, Lockers, Fixtures

| | Number of Employees | Total Reporting Units | No. of reporting units by employment-size class | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | 1-3 | 4-7 | 8-19 | 20-49 | 50-99 | 100-249 | 250-499 | 500 or More |
| **Connecticut** | | | | | | | | | | |
| 1973 | 596 | 9 | 2 | 3 | - | 2 | 1 | - | 1 | - |
| 1972 | 356 | 9 | 1 | 3 | 1 | 2 | 1 | 1 | - | - |
| 1971 | 189-439* | 9 | 3 | 2 | 1 | 1 | 1 | 1 | - | - |
| 1970 | 319 | 11 | 4 | 4 | - | 1 | 1 | 1 | - | - |
| **Fairfield Co.** | | | | | | | | | | |
| 1973 | - | - | - | - | - | - | - | - | - | - |
| 1972 | - | - | - | - | - | - | - | - | - | - |
| 1971 | - | - | - | - | - | - | - | - | - | - |
| 1970 | - | - | - | - | - | - | - | - | - | - |
| **Hartford Co.** | | | | | | | | | | |
| 1973 | 329-664* | 6 | 1 | 2 | - | 1 | 1 | - | 1 | - |
| 1972 | 187-433* | 7 | 1 | 2 | 1 | 1 | 1 | 1 | - | - |
| 1971 | 179-414* | 6 | 1 | 2 | - | 1 | 1 | 1 | - | - |
| 1970 | 179-414* | 6 | 1 | 2 | - | 1 | 1 | 1 | - | - |
| **New Haven Co.** | | | | | | | | | | |
| 1973 | - | - | - | - | - | - | - | - | - | - |
| 1972 | - | - | - | - | - | - | - | - | - | - |
| 1971 | - | - | - | - | - | - | - | - | - | - |
| 1970 | - | - | - | - | - | - | - | - | - | - |

*Disclosure laws prohibit publishing figures except size range.

Source: U.S. Department of Commerce, Bureau of the Census, County Business Patterns - Connecticut, 1970-1973.

Table II-34 Employment, Number of Firms and Employment-Size Distribution, SIC 764, Connecticut and Selected Counties, 1970-1973

SIC 764 - Reupholstery and Furniture Repair

| | Number of Employees | Total Reporting Units | No. of reporting units by employment-size class | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | 1-3 | 4-7 | 8-19 | 20-49 | 50-99 | 100-249 | 250-499 | 500 or More |
| Connecticut | | | | | | | | | | |
| 1973 | 299 | 96 | 71 | 17 | 8 | - | - | - | - | - |
| 1972 | 273 | 91 | 64 | 19 | 8 | - | - | - | - | - |
| 1971 | 304 | 99 | 68 | 24 | 7 | - | - | - | - | - |
| 1970 | 326 | 99 | 67 | 21 | 11 | - | - | - | - | - |
| Fairfield Co. | | | | | | | | | | |
| 1973 | 98 | 36 | 27 | 6 | 3 | - | - | - | - | - |
| 1972 | 91 | 30 | 21 | 7 | 2 | - | - | - | - | - |
| 1971 | 104 | 34 | 24 | 8 | 2 | - | - | - | - | - |
| 1970 | 113 | 35 | 24 | 8 | 3 | - | - | - | - | - |
| Hartford Co. | | | | | | | | | | |
| 1973 | 98 | 27 | 20 | 4 | 3 | - | - | - | - | - |
| 1972 | 94 | 28 | 18 | 6 | 4 | - | - | - | - | - |
| 1971 | 115 | 32 | 20 | 8 | 4 | - | - | - | - | - |
| 1970 | 123 | 34 | 22 | 7 | 5 | - | - | - | - | - |
| New Haven Co. | | | | | | | | | | |
| 1973 | 74 | 19 | 12 | 5 | 2 | - | - | - | - | - |
| 1972 | 66 | 20 | 13 | 5 | 2 | - | - | - | - | - |
| 1971 | 61 | 18 | 10 | 7 | 1 | - | - | - | - | - |
| 1970 | 67 | 17 | 9 | 5 | 3 | - | - | - | - | - |

*Disclosure laws prohibit publishing figures except size range.

Source: U.S. Department of Commerce, Bureau of the Census, County Business Patterns - Connecticut, 1970-1973.

several firms in SIC 764, Reupholstery and Furniture Repair, these firms typically employ less than ten workers.

### (3) Employment in Cabinetmaking, Finishing, and Upholstering Trades

The Employment Security Division of the Connecticut Labor Department has prepared employment projections, based on 1970 Census data, to serve as indicators of occupational trends in the State. In Tables II-35 through II-38, projected employment changes are shown for the State and for three labor market areas (Bridgeport, Hartford, and New Haven) for the following occupations: cabinetmakers; furniture and wood finishers; upholsterers; and filers, polishers, sanders and buffers.

As is evident, the projected manpower needs in these three trades are moderate for the State as a whole, and especially so for the three labor market areas. For the entire State, projected employment growth is greatest for upholstery craftsmen; the greater numbers of cabinetmakers and filers, polishers, etc. ensure many replacement openings in that trade, although the growth rates are substantially lower. Of the three labor market areas, Hartford will require the greatest number of craftsmen in the combined trades.

### (4) Wages in Furniture Trades

Table II-39 shows average hourly earnings for the first quarter of 1970-1975, for Connecticut workers employed in industries classified 2511, 2512, 2541, and 764 (disclosure law prevents publication of comparable figures for

Table II-35 Projected Employment Changes, Connecticut

|  | 1970 | 1980 | Change, 1970-1980 |  | Deaths and Retirements 1970-1980 | Total Manpower Needs, 1970-1980 |
|---|---|---|---|---|---|---|
|  |  |  | % | Net |  |  |
| Total, All Occupations | 1,265,100 | 1,432,130 | 13.2 | 167,030 | 512,180 | 679,210 |
| Craftsmen | 181,930 | 189,350 | 4.1 | 7,420 | 39,520 | 46,940 |
| Cabinetmakers | 1,160 | 1,220 | 5.2 | 60 | 330 | 390 |
| Furniture and Wood Finishers | 250 | 260 | 4.0 | 10 | 110 | 120 |
| Upholsterers | 820 | 960 | 17.1 | 140 | 260 | 400 |
| Filers, Polishers, Sanders, Buffers | 4,540 | 3,920 | -13.7 | -620 | 1,510 | 890 |

Source: Connecticut Department of Labor, Occupational Outlook, 1970-1980.

## Table II-36 Projected Employment Changes, Bridgeport

| | 1970 | 1980 | Change, 1970-1980 | | Deaths and Retirements 1970-1980 | Total Manpower Needs, 1970-1980 |
|---|---|---|---|---|---|---|
| | | | % | Net | | |
| Total, All Occupations | 163,400 | 177,760 | 8.8 | 14,360 | 63,230 | 77,590 |
| Craftsmen | 24,930 | 24,900 | -0.1 | -30 | 5,000 | 4,970 |
| Cabinetmakers | 130 | 120 | -7.7 | -10 | 30 | 20 |
| Furniture and Wood Finishers | 20 | 20 | 0.0 | 0 | 0 | 0 |
| Upholsterers | 60 | 60 | 0.0 | 0 | 10 | 10 |
| Filers, Polishers, Sanders, Buffers | 530 | 460 | -13.2 | -70 | 170 | 100 |

Source: Connecticut Department of Labor, Employment Security Division, Occupational Outlook 1970-1980: Bridgeport.

Table II-37 Projected Employment Changes, Hartford

|  | 1970 | 1980 | Change, 1970-1980 |  | Deaths and Retirements 1970-1980 | Total Manpower Needs, 1970-1980 |
|---|---|---|---|---|---|---|
|  |  |  | % | Net |  |  |
| Total, All Occupations | 289,500 | 335,730 | 16.0 | 46,230 | 120,060 | 166,290 |
| Craftsmen | 38,640 | 40,730 | 5.4 | 2,090 | 8,010 | 10,100 |
| Cabinetmakers | 290 | 270 | -6.9 | -20 | 70 | 50 |
| Furniture and Wood Finishers | 40 | 40 | 0.0 | 0 | 10 | 10 |
| Upholsterers | 160 | 170 | 6.3 | 10 | 50 | 60 |
| Filers, Polishers, Sanders, Buffers | 650 | 520 | -20.0 | -130 | 210 | 80 |

Source: Connecticut Department of Labor, Employment and Security Division, Occupational Outlook 1970-1980: Hartford.

Table II-38 Projected Employment Changes, New Haven

| | 1970 | 1980 | Change, 1970-1980 | | Deaths and Retirements 1970-1980 | Total Manpower Needs, 1970-1980 |
|---|---|---|---|---|---|---|
| | | | % | Net | | |
| Total, All Occupations | 155,100 | 168,010 | 8.3 | 12,910 | 61,550 | 74,460 |
| Craftsmen | 19,260 | 19,320 | 0.3 | 60 | 3,710 | 3,770 |
| Cabinetmakers | 130 | 110 | -15.4 | -20 | 20 | 0 |
| Furniture and Wood Finishers | 90 | 80 | -11.1 | -10 | 30 | 20 |
| Upholsterers | 170 | 170 | 0.0 | 0 | 50 | 50 |
| Filers, Polishers, Sanders, Buffers | 360 | 280 | -22.2 | -80 | 110 | 30 |

Source: Connecticut Department of Labor, Employment Security Division, Occupational Outlook 1970-1980: New Haven.

Table II-39 Average Hourly Earnings, Connecticut Furniture Trades Workers (40 hr. work week assumed)

| | SIC 2511 | SIC 2512 | SIC 2541 | SIC 764 |
|---|---|---|---|---|
| 1st quarter, 1975 | $ 4.45 | $ 5.09 | $ 6.86 | $ 3.21 |
| " " , 1974 | 4.42 | 4.56 | 6.43 | 3.23 |
| " " , 1973 | 3.53 | 3.88 | 5.99 | 3.20 |
| " " , 1972 | 3.29 | 3.57 | 6.24 | 2.98 |
| " " , 1971 | 3.31 | 3.34 | 5.66 | 2.81 |
| " " , 1970 | 3.13 | 3.11 | 4.59 | 2.67 |

Source: Unpublished, Connecticut State Department of Labor, Research and Information Divison.

the other SIC's). Wages for workers in the wood household furniture industries (2511 and 2512) are roughly similar, with the exception of 1975, and do not differ significantly from the average hourly wage for total manufacturing (not shown here). By comparison, workers employed in reupholstery and repair (764) make less than average wage, while those in wood partitions (2541) do very well.

Average hourly wages in SIC 2511, Wood Household Furniture, except upholstered, are shown for selected occupations in an Industry Wage Survey published by the Bureau of Labor Statistics, U.S. DOL, in 1973 (Bulletin 1793). Average hourly wages as of October 1971, are reported by region. Table II-40 shows hourly wage data by occupation for workers in SIC 2511 in New England. Occupational averages tend to be higher in metropolitan than non-metropolitan areas, and in establishments employing 250 workers or more than in smaller establishments. Incentive workers typically have higher average earnings than time rated workers in the same occupation.

In 1971, occupational wages in New England in the Wood Household, except Upholstered industry group were noticably less than Connecticut wages in the broader Furniture and Wood industry group. It is unclear whether Connecticut normally has a higher wage scale than the rest of the New England region or whether the inclusion of other SIC's in the New England report significantly affects the average hourly wage rate.

## Table II-40 Average Hourly Wages, by Occupation, New England, SIC 2511 (October, 1971)

| | Average Hourly Wages | Metro-Areas | Non-Metro Areas | 20-249 Workers | 250 Workers or More | Time Workers | Incentive Workers |
|---|---|---|---|---|---|---|---|
| Assemblers, furniture | $2.60 | $2.92 | $2.49 | $2.61 | $2.99 | $2.58 | $2.84 |
| Assemblers, chairs | 2.74 | -- | 3.01 | 2.92 | -- | -- | -- |
| Cut-off saw operators | 2.57 | 3.20 | 2.57 | 2.62 | 2.65 | 2.52 | 2.87 |
| Double-end trimmers & boring-machine operators | 2.37 | -- | 2.37 | 2.19 | 2.52 | -- | -- |
| Gluers | 2.54 | -- | 2.58 | 2.49 | 2.81 | 2.37 | 3.03 |
| Maintenance | 2.73 | 3.31 | 2.66 | 2.85 | -- | 2.73 | -- |
| Molding-machine operators: | | | | | | | |
| Set-up & operate | 2.57 | -- | 2.55 | 2.49 | -- | -- | -- |
| Feed only | 2.18 | -- | -- | -- | -- | -- | -- |
| Off-bearers, machine | 2.36 | -- | 2.41 | 2.39 | 2.58 | 2.29 | 2.68 |
| Packers | 2.42 | 2.64 | 2.43 | 2.48 | -- | 2.38 | 2.65 |
| Planer operators: | | | | | | | |
| Set-up & operate | 2.85 | -- | -- | -- | -- | -- | -- |
| Feed only | -- | -- | -- | -- | -- | -- | -- |
| Plastic-top installers | 3.07 | -- | -- | -- | -- | -- | -- |
| Rip-saw operators | 2.60 | -- | 2.62 | 2.61 | 2.73 | 2.51 | 2.87 |
| Router operators: | | | | | | | |
| Set-up & operate | 2.60 | 3.08 | 2.55 | 2.77 | -- | 2.68 | 2.62 |
| Feed only | 2.27 | -- | -- | -- | -- | -- | -- |
| Rubbers, hand | 2.51 | -- | 2.71 | 2.65 | -- | 2.55 | 3.30 |
| Rubbers, machine | 2.38 | -- | 2.38 | 2.38 | -- | -- | -- |
| Sanders, hand | 2.30 | -- | 2.25 | 2.56 | -- | 2.19 | 3.01 |
| Sanders, machine | 2.82 | 2.98 | 3.01 | 3.01 | 3.02 | 2.64 | 3.28 |
| Shaper operators, automatic: | | | | | | | |
| Set-up & operate | 2.96 | -- | 3.14 | 3.08 | -- | -- | -- |
| Feed only | -- | -- | -- | -- | -- | -- | -- |
| Shaper operators, hand: | | | | | | | |
| Set-up & operate | 3.12 | -- | 3.08 | 2.97 | 3.44 | -- | -- |
| Feed only | 2.12 | -- | -- | -- | -- | -- | -- |
| Sprayers | 2.65 | 2.90 | 2.81 | 2.63 | -- | 2.74 | 2.96 |
| Tenoner operators: | | | | | | | |
| Set-up & operate | 2.89 | 2.87 | 2.91 | 2.77 | 3.27 | -- | -- |
| Feed only | -- | -- | -- | -- | -- | -- | -- |

Source: U.S. Department of Labor, Bureau of Labor Statistics, Bulletin 1793, Industry Wage Survey, Wood Household Furniture, Washington: 1973.

### (5) Skill Requirements and Opportunity for Advancement

Cabinetmaking, finishing, and upholstering trades do not have formal education requirements, such as a high school degree or the equivalent. Prerequisites for all three trades, however, are manual dexterity and manipulative skills. In addition, basic mathematical skills are necessary for making measurements.

These trades are generally learned by on-the-job training and/or vocational training. As an indication of the training time involved, the apprentice training programs implemented at Somers by the Connecticut DOL Apprentice Training Division involve 8,000 hours each for upholsterer, fabric cutter, and woodworker training, and 6,000 hours for furniture refinisher training.

Within the general category cabinetmaker, three major skill levels are identifiable: the relatively low-skill assembly and machine operation functions, requiring a minimum of training; and highly skilled, all-around cabinetmaking, including set-up and jig-making. This latter skill level requires, at a minimum, four years of training and experience.

Finishing typically includes two categories of semi-skilled workers; sanders and rubbers form the first category, and sprayers constitute the second.

There are two major skill functions involved in upholstering, also: cutting is a medium-skill task, while installation is low-skill.

Given the limited number of firms in Connecticut, and the relatively moderate demand for workers in these trades, opportunities for job placement will depend on the number of trained workers competing for the 40-odd openings available each year. Except for upholsterers, whose number is expanding, opportunities for advancement appear to be limited primarily to replacement openings, i.e., deaths and retirements.

The 1970 Census occupational tital "cabinetmaker" covers Dictionary of Occupational Titles codes 660.280 "cabinetmaker, cabinetmaker apprentice, cabinetmaker, refrigeration; automobile upholsterer, automobile upholster apprentice, furniture upholsterer, furniture upholsterer apprentice, slipcover cutter, and upholsterer.

The Census title "upholsterer" covers DOT codes 780.381, listed above (the occupation title conversion table[5] does not indicate which subgroups in 780.381 are counted with the Census title "cabinetmaker" and which with "upholsterer"), and DOT 780.884, "upholsterer". 780.884 includes nearly forty trades, representing upholstering skills found in the automobile, mattress and bedding, and mortuary science industries, as well as the furniture industry.

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[5] Source: Tomorrow's Manpower Needs, Supplement 3, Matching Occupational Classifications to Vocational Education Program Codes. U. S. Department of Labor, Bureau of Labor Statistics, 1973.

The DOT categories corresponding to the Census titles "Filer, Polisher, Sander, Buffer" and "Furniture and Wood Finisher" are too broad for specific comparability. The former Census category does include metalworkers as well as woodworkers.

### (6) Industry Characteristics

Employment in industries primarily engaged in the manufacture or repair of wood school, office, and home furnishings constitutes less than one percent of the total manufacturing labor force, both for the nation as a whole and for the State of Connecticut (see Table II-41). Employment patterns in Connecticut closely conform to national patterns for SIC's 2517, 2521, 2531, and 2541. However, millwork, wood cabinet, and wood household (upholstered and non-upholstered) industries are under-represented in Connecticut, as compared to the nation as a whole.

In a 1973 Industry Wage Survey of SIC 2511 (Wood Household Furniture, except Upholstered), the U. S. Bureau of Labor Statistics reports that this industry group is very regionalized, with most employment in the Southeast, Great Lakes, and Border States regions. Establishments in this industry group that had labor-management contracts covering a majority of their production workers employed approximately one-third of the labor force. This proportion varied among regions; in New England two-fifths of the work force in SIC 2511 were covered by labor-management contracts. The major unions in the industry are the United Brotherhood of Carpenters and Joiners of America, and the United Furniture Workers of America.

Table II-41 Furniture & Wood Industry Labor Force Expressed as a Percent of Total Labor Force, U.S. and Connecticut, 1972

| (1972) SIC Code | U. S. (%) | Connecticut (%) |
|---|---|---|
| 2431 | 0.3 | 0.07 |
| 2434 | 0.2 | 0.07 |
| 2511 | 0.7 | 0.1 |
| 2512 | 0.5 | 0.1 |
| 2517 | 0.1 | 0.1 -0.2* |
| 2521 | 0.06 | 0.03-0.06* |
| 2531 | 0.1 | 0.06-0.1* |
| 2541 | 0.2 | 0.06-0.1* |

Source: Derived from 1972 Census of Manufactures, Industry Series, U.S. Department of Commerce, Bureau of the Census.

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*figures reflect employment-size ranges

The Connecticut industries comprised of establishments primarily engaged in the manufacture or repair of wood school, office, or home furnishings may be characterized as few in number, and usually employing less than 20 workers. Total projected manpower needs during 1970-1980 in cabinetmaking and finishing are due largely to replacements; the number of projected openings, moreover, is small enough to indicate that chances of placing offenders trained as cabinetmakers, finishers, upholsterers, or filers, polishers, sanders, and buffers will depend on the number of trained inmates released each year, as well as the number of outside workers seeking employment in these trades.

### 3. Job Market Monitoring System

If correctional industries intend to be responsive to labor market conditions in Connecticut, a regular updating of industrial and occupational employment statistics should be instituted. Such a monitoring system would properly be administered by the Department of Correction's Prison Industry Director. Several levels of monitoring activity may be foreseen: major industry group employment checked annually or semi-annually; detailed industrial employment checked every five years; and specific occupational employment--current and projected--checked every ten years.

The purpose of an annual or semiannual check of employment in major industry groups in the State is to remain alert to unusual changes, such as a sudden increase in employment corresponding to a particularly large firm's locating in Connecticut, or conversely, a sudden decrease in employment in one sector. This check will provide timely information pertinent to prison industry composition. An excellent source of current industry employment statistics is the State Department of Labor's monthly publication, Connecticut Labor Situation.

For a more detailed check on specific industries (i.e., at the 4-digit SIC level), the annual statistics reported in County Business Patterns may be plotted every five years as a time series. Changes in employment and number of firms can thus be noted, and trends identified.

Since County Business Patterns reports all SIC groups, proposed prison industries may be tracked as well as existing industries. Similar state industry employment data are also found in the quinquennial Census of Manufactures - Area Statistics, also published by the Bureau of the Census.

Finally, since career paths, job opportunities, and vocational programs are oriented toward occupations, not industries, the manpower needs projections prepared every ten years by the State Department of Labor Employment Security Division are a major information source for a monitoring system. Growth rate, new and replacement openings, and total manpower needs are projected for ten years. The prospects for occupations represented in prison industry shops should be compared with those predicted for the same occupations in the 1970-1980 period (i.e., the statistics presented in the job market analyses in this report may be used as baseline data).

Further, other trades that show good labor market potential may be identified from the occupation projections. Selection criteria should first be determined (e.g., a candidate occupation must show a growth rate of a given percent as well as a given number of openings for the next ten years). The list of occupations may then be sorted to identify those which satisfy the desired criteria.[6] On the basis of these sorts, new trades may be added within prison industry shops, additional vocational training programs may be included, and job placement efforts may be better directed, particularly in local labor market areas.

### 4. Concluding Remarks

Of the existing industries at Somers, the Print Shop is training inmate workers in trades that show the greatest manpower needs in Connecticut. Pressmen, plate printers, photoengravers, lithographers, compositors, and typesetters all show ample (i.e., 700-1600) openings in the 1970-1980 decade. The Furniture Shop workers, particularly cabinetmakers and upholsterers, also face relatively promising labor market conditions.

The employment outlook for dental lab technicians as such in Connecticut is not promising. However, the skills learned in a dental laboratory are directly applicable to benchwork positions in other industries. For example, ceramists, lab technicians or crown and bridge or metalwork set-up men and molders possess craft skills that are also used in the electronics industry and the instrument and appliance industry. Other jobs in dental laboratories which involve precision working and manipulating skills are equally applicable to jobs in the instrument and appliances industry and the surgical appliance industry.

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[6] As an example, those occupations which show a growth rate of at least 30 percent and total manpower needs of at least 1,000 for 1970-1980 are listed in Figure II-9. This list represents approximately 12 percent of the occupations for which projections have been prepared.

With the manpower demand for opticians and lens grinders averaging thirty per year, the ex-offenders trained in the Optical Lab at Somers should, once the training program is officially recognized and ex-felons allowed to be licensed, be able to compete successfully for jobs in their field. Hartford is a more promising labor market area than is either Bridgeport or New Haven. There are several large optical laboratories in neighboring states (Massachusetts and Rhode Island) which either do not require licenses for mechanical opticians and trainees or do not deny such licenses on the grounds of a felony record or the "good moral character" criterion.

Finally, existing labor market data are not sufficiently detailed to provide specific information on the job prospects for ex-offenders trained as small engine mechanics or typewriter repairmen. However, it is encouraging that these jobs do have a great degree of skill transferability and there are no artificial barriers to employment for ex-offenders seeking work in these areas.

## Figure II-9

## Occupations in Connecticut

with Manpower needs 1970-1980 ≥ 1,000

and % growth 1970-1980 ≥ 30%:

| | % Growth | Total Manpower Needs |
|---|---|---|
| electrical, electronic technicians | 42.3 | 1,500 |
| engineering, science tech., n.e.c. | 54.8 | 3,850 |
| registered nurses | 35.8 | 18,800 |
| therapists | 64.5 | 2,190 |
| clinical lab technologists, tech. | 73.5 | 2,930 |
| dental hygienists | 95.8 | 1,380 |
| radiologic technologists, technicians | 47.1 | 1,460 |
| economists | 43.5 | 1,360 |
| editors and reporters | 34.8 | 2,520 |
| writers, artists, entertainers, n.e.c. | 41.2 | 1,380 |
| architects | 42.1 | 1,250 |
| lawyers | 31.7 | 3,570 |
| operations, systems research | 35.4 | 1,200 |
| personnel, labor relations | 43.0 | 4,120 |
| research workers, n.e.c. | 45.5 | 2,130 |
| recreation workers | 39.0 | 1,070 |
| social workers | 32.4 | 3,210 |
| vocational, educational counselors | 58.5 | 1,840 |
| bank, financial managers | 35.1 | 4,650 |
| buyers, shippers; trade & farm products | 30.5 | 1,980 |
| sales manager, retail trade | 37.7 | 3,590 |
| health administrators | 61.3 | 2,200 |
| mgrs., superintendents, bldg. | 42.7 | 1,000 |
| office managers | 43.0 | 4,480 |
| advertising agents, salesmen | 44.9 | 1,020 |
| insurance agents, brokers, etc. | 32.9 | 5,210 |
| salesmen, retail trade | 33.2 | 4,130 |
| salesmen, service & construction | 38.6 | 2,760 |
| secretaries, legal | 52.9 | 3,060 |
| secretaries, medical | 51.1 | 2,600 |
| computer, peripheral equip. operators | 40.4 | 1,810 |
| billing clerks | 46.7 | 2,910 |
| counter clerks, exc. food | 55.3 | 5,100 |
| insurance adjustors, examiners | 37.7 | 1,640 |
| air cond., heating, refrig. (mechanic, repair, install) | 59.3 | 1,740 |
| laundry, dry clean operators, n.e.c. | 43.0 | 2,340 |
| dental assistants | 34.8 | 2,010 |
| health aides, except nursing | 69.1 | 2,850 |
| nurses aides, orderlies | 35.0 | 13,750 |
| practical nurses | 62.1 | 5,530 |
| child care workers, exc. private | 31.5 | 4,850 |
| hairdressers | 57.1 | 9,120 |
| housekeepers, exc. private | 34.4 | 1,750 |

Source: Connecticut Department of Labor, Employment Security Division, Occupational Outlook 1970-1980: Statewide

## B. Sales Market Surveys

### 1. Introduction

Detailed surveys of the market for products and services presently produced in the Correctional Industries' shops were conducted. These surveys examined:

- current clients or customers,
- other potential client or customer sources,
- volume of potential business from other sources, and
- capacity and capability of existing shops to meet expanded demands.

In the following section these issues are addressed for each shop. Market size estimates are developed, and the basis for these estimates is discussed. These market size estimates are made with several assumptions which must be taken into account in reviewing these analyses:

1. Market sizes and volumes are presented in terms of dollar prices currently paid by state and local agencies to present suppliers for the products and services involved. They do not reflect the price concessions which may be necessary in order to capture increased portions of each market.
2. Physical and dollar volumes supplied generally refer to fiscal 1975, which commenced on July 1, 1974. They are not specific forecasts for the present or future fiscal years except where so stated.
3. The estimates given do not take into account the effect of "recycling" funds into the State Treasury as a result of the State itself providing these products and services through Correctional Industries. This recycling has an additional favorable effect on the State budget.

4. The data supplied also do not take into account the effect of Federal or other "matching funds" Such funds in effect reduce the cost of such products and services to the state and bring outside funds into the Treasury and into the state economy.

## 2. Existing Industries

### a. Print Shop

Two million five hundred thousand dollars per year of the total state market for printing is currently accessible to the Print Shop. With increased capabilities, 96 percent of the state market is accessible--accounting for a total annual market of $3,840,000. The estimated total municipal market for printing is $4,300,000. With expanded shop capabilities and more extensive marketing efforts, these markets can be more fully reached. The Print Shop is thus an excellent candidate for the Free Venture Model.

#### (1) State Printing Market (Four Tiers)

The state market can best be described as consisting of four tiers of decreasing size and of increasing difficulty in terms of measuring market size.

##### (a) Tier One - Printing Requirements Placed Through the State Purchasing Agency

ECON's market study team reviewed a computer printout[7] of all awards made by the State Purchasing Agency for fiscal 1975 (July 1974 through June 1975), aggregated and totaled by commodity (type of item) in a manner fully in conformance with the state purchasing classification system described in the State booklet "Classification of Commodities for Procurement". The items examined under printing sales include all types of forms, publications, envelopes and miscellaneous printed matter. The annual total for these items for fiscal 1975 is $2,168,000. In addition, portions of the sales volume of other listed commodities may include some printing. These are reproduction services ($330,000) and badges, signs, etc. ($113,000). Assuming (conservatively) that 25 percent of these involve printing, $110,000 would be added to the total printing market serviced by the State Purchasing Agency. In addition, there are open printing contracts with vendors in the Hartford area for use by various state agencies which are not included in the above total. The state printing buyer estimated the dollar volume of such contracts to be $59,000. The total of State Purchasing Agency processed printing is thus taken to be at least $2,168,000 + $110,000 + $59,000 = $2,337,000 annually. This figure is probably understated for several reasons:

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[7] The existence of these printouts is due to the fact that Connecticut is currently in the process of converting its State purchasing system to the Federal system. There are no plans at present to update these printouts for future fiscal year sales.

- The amounts totaled include only initial awards. Final amounts may be adjusted by five to ten percent, generally upward.

- The above totals cover all of fiscal 1975, but some awards for that period were not captured by the computer run for administrative reasons. Therefore, the actual totals are probably slightly larger.
- The amounts of the open printing contracts and the prorated items are likely to be understated.

Thus, the amount of $2,337,000 annually for the State Purchasing Agency's purchased printing is felt to be conservative.

### (b) Tier Two - Printing Requirements Purchased Directly by State Agencies

There are several categories of purchases that do not go through the State Purchasing Agency and are, therefore, not included in that Agency's totals.

- Certain agencies such as the Legislature and the Judiciary are not required to use the State Purchasing Agency.
- Sales and exchanges between state agencies are exempt (these would include most of Correctional Industries' sales), as are purchases requiring urgency which cannot wait for the normal six to eight week procurement cycle.
- Purchases below certain minimum dollar values, ranging between $200 and $500 (depending on the state agency) are not routed through the State Purchasing Agency.

The situation is further complicated by the fact that, although these transactions are not required to go through the State Purchasing Agency, the originating agencies can nevertheless award them through the State Purchasing Agency if they desire.

We were able to establish[8] an estimate for the total expended for printing in fiscal 1975 by the Legislature ($600,000) and by the Judiciary ($350,000), none of which went through the State Purchasing Agency or were purchased from Correctional Industries. These estimates add $950,000 to the annual total of state purchased printing. Correctional Industries' total volume for state printing as given in its annual report for production at Somers and Cheshire is approximately $200,000. Little, if any of this amount, is included in the enumerated totals. The explicitly included volume for printing purchased directly by state agencies is thus taken as $600,000 + $350,000 + $200,000 = $1,150,000. This figure is also on the conservative side, since it includes only two state agencies (Judiciary and the Legislative) plus the sales volume that Correctional Industries is now capturing.

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[8] These figures were obtained from appropriate individuals within the agencies and subsequently verified by inspection of the State budget.

### (c) Tier Three - Formal, Organized In-House Printing Operations Maintained by Several State Agencies

Efforts were made to determine the number and size of in-house printing operations at state agencies. The following paragraphs will describe the major in-house operations that could be identified, and will provide a summary description of the production volume estimates and other statistics relevant to this market study.

- Environmental Protection Agency (EPA) - This in-house facility was originally created to reduce copying and duplicating costs at the EPA. Before it was completed, it had become a joint operation for several state agencies. It now serves seven agencies on a regular basis with explicit accounting and billing. The agencies are: Environmental Protection, Agriculture, Personnel, Education, Council of Human Services, Banking, and Fire Arms Control Board. This plant still has spare capacity and is soliciting additional business from other agencies. Quality of management and quality of product appears to be quite good. The shop's annual volume is currently $120,000, of which 25 percent is for Environmental Protection itself. Installed capacity is currently $200,000 and could be expanded beyond that. The agency charges a flat 1.2 cents per impression. This figure is important since it represents a price that is both competitive and adequately covers production costs, probably including a small reserve cushion. There is no discount for volume; the lower printing cost of large runs seems to be approximately offset by the additional operations involved: collating, stapling, binding, etc. The operation is run with four men, yielding gross production of $120,000 per year.

- Labor Department, Wethersfield - Since this is almost exclusively for in-house consumption, production statistics were not readily available. It is currently running close to ten million impressions a year with four men, which makes it the equivalent of the EPA printing facility. There seems to be spare capacity here also.
- Public Works - This is a smaller facility running approximately 2.5 million impressions a year with overflows of 500,000 placed directly with outside vendors. This would amount to a total of $35,000 annually not included in categories previously mentioned, that is, not subject to double counting.

Thus, the identifiable total for in-house and related operations from these three sources is currently $120,000 + $120,000 + $35,000 = $275,000 annually.

### (d) Tier Four - Small In-House Printing, Duplicating, Reproduction and Copying Facilities

Since there are some 150 state agencies of all types in Connecticut, and most of them probably have at least some copying and duplicating equipment, it is impossible to get an exact figure for volume. Undoubtedly some non-negligible portion of this volume could be done more economically by outside printing if this business could be serviced promptly and with a minimum of red tape. This business is probably not easy to capture by Correctional Industries, but then capturing some of the other business will also require imaginative marketing and production efforts. If anything, it may be a target of opportunity for a community-based industry institution.

### (e) Total Annual Printing Sales Estimate for the State Market

The total identified volume for the first three tiers of the state market for printing amounts to $2,337,000 + $1,150,000 + $275,000 = $3,762,000 annually. It should be emphasized again that this figure is on the conservative side. It does not include the innumerable small requirements of the fourth tier. Thus, an estimate of four million dollars for annual state printing requirements seems entirely reasonable. This also correlates very well with an estimate for the State market for printing (reportedly made by Xerox for their own use) of five million dollars annually.

### (2) Municipal Market for Correctional Industries Printing

There are some 169 municipalities in Connecticut which have a wide range in population and printing sales volume. Rather than attempt to measure the actual municipal market for printing, we elected to estimate the size of the market using sample survey techniques. Specifically, our estimate of the municipal printing market was obtained by examining the general printing and educational printing expenditures of a sample of several towns and extrapolating the printing sales volume for all towns in the state. The extrapolation procedure that we employed takes into account the variations in per capita expenditures with town size.

The total market for general municipal printing is estimated at $3.0 million per year. The municipal market for printing associated with education is $1.3 million per year. Thus, the estimated total municipal market for printing is $4.3 million per year. It should be emphasized that the printing sales volumes measured for the sampled towns were restricted to printing expenditures explicitly labeled as such in budgets. These reported sales would correspond to the first two or three tiers defined for the state printing market. There is still the equivalent of the fourth tier: in-house capabilities involving various printing, duplicating, reproduction and copying equipment used for jobs that might be done by Correctional Industries.

Preferring to err on the conservative side, we have not included in our estimate of the total municipal printing market any contribution from these in-house shops. We should mention, however, that many educational systems have printing shops as part of their vocational training facilities. It is relatively easy to obtain production from these installations and many are being used that way. They are run by students, instructors, or even by persons employed expressly for the purpose. These operations are either not reflected in the budget at all, or they would be exceedingly difficult to identify. At this point, we can only guess at the magnitude of the sales volumes from such shops.

## Nature of the Municipal Printing Market

Not only is the number of towns in Connecticut large, but their purchasing systems differ widely in organization and character also. Some have centralized purchasing, while in others each department or agency does its own purchasing. In addition, even those towns that have centralized purchasing very often have autonomous entities that purchase on their own. This is especially true of many Boards of Education. Thus, this market is more difficult to reach than the state market. There are a number of groups of municipal officials, such as the Connecticut Conference of Mayors, the Capitol (sic) Region Purchasing Council, etc., which should be considered as "target of opportunity" for any campaign to reach the municipal market, especially in the Hartford area.

### (3) Market Potential for Correctional Industries with Present Printing Capability

Not all the printing currently being bought by the state is within the present technical capability of Correctional Industries. It was deemed desirable to find out how much of the total market was within Correctional Industries' capability. However, estimating this fraction was difficult for two reasons.

- Of all the figures obtained, only those provided by the State Purchasing Agency were broken down by types, the others all being overall totals.
- Even the State Purchasing Agency figures provided only the roughest guide in some categories.

Forty percent of the total amount of printing processed through the State Purchasing Agency was estimated to be within Correctional Industries' present capability. In dollar estimates, this would amount to $931,000 annually. This relatively low figure is due to the amount of printing of carbon-interleaved forms which constitute a large portion of the State Purchasing Agency's awards. Correctional Industries cannot produce these forms at present. In addition, most special printing requirements would be processed through the State Purchasing Agency.

Of the second tier, represented by the Legislative, the Judiciary and current Correctional Industries production, virtually all is within Correctional Industries' capability. In the third tier, represented by formal in-house operations, it is estimated that two-third's is within Correctional Industries' capability. The requirements of the fourth tier (small in-house installation) are all on a level that Correctional Industries can easily match.

Given the above estimates, $2,500,000 of the total State market is currently accessible given Correctional Industries' production capability. This constitutes 62.5 percent of the market. It should be noted that, although the above figure relies on several estimates, the estimates themselves are all on the conservative side.

#### (4) Market Potential for Correctional Industries with Recommended Printing Capability

With the increased capability for Correctional Industries' printing plant recommended in the production analyses section of this report, additional portions of the State market become accessible. Based on the level of data available, it is estimated that virtually all of the second, third and fourth tiers would fall within Correctional Industries' capabilities. The only categories excluded would be those involving special requirements, such as multi-color, special quality, etc. It is estimated that the portion excluded under these circumstances is about four percent of the total market. Thus, 96 percent of the total State market or $3,840,000 would be within Correctional Industries' potential reach. In addition, a similarly high percentage of the municipal printing market ($4.3 million) would be accessible to Correctional Industries.

It should be emphasized that all the above estimates are based only on technical production capability. They do not include considerations of shop capacity or security and turnaround time. The latter are very important to some agencies; however, their potential negative impact on market size is unknown.

### (5) Trends in Size of State Market

In an effort to determine the effect of economies and budget cutting on the State market for printing, we compared figures for printing expenditures in two consecutive budget years for a representative sampling of agencies. The figures were taken from State budgets for fiscal 1975 and fiscal 1976. The amount of printing represented by these agencies totals over 1.1 million dollars. No clear trend emerged from these comparisons. The educational printing totals increased three percent from one year to the next; the other agencies total decreased by 6.5 percent, but this was due entirely to a large reduction in one high volume agency. The overall total of the sample showed a decrease of four percent in dollar volume from fiscal 1975 to fiscal 1976. Since fiscal 1976 is not yet over, it is possible that newly ordered budget cutbacks may result in further reductions. However, we have no specific evidence of this.

### b. Optical Shop

The potential annual State-use market for the Somers' Optical Shop is currently $175,000 and is likely to grow. The shop also appears to have a high profitability potential and appears to be an excellent candidate for ECON's Free Venture Model.

#### (1) State Market

The market for optical lenses consists essentially of one large customer and one or two small customers. The large customer is the Connecticut Department of Social Services which is responsible for all welfare disbursements in the State. For fiscal 1975 Social Services had 9,000 clients requiring prescriptions for glasses. The agency allows $17.50 each for the glasses themselves, which is the price opticians charge. The total amount spent by the Department for glasses was thus $158,000 for fiscal 1975, while the total spent for optical services was $206,000. The difference between the amounts is the cost of testing, fitting, etc. The Agency estimates growth of approximately 10 percent annually for the next few years. This growth is apparently a combination of increases in physical volume and unit prices.

The other market for the Somers' Optical Shop is made up of inmates of State institutions, for which the State provides medical care, although not through the Department of Social Services. The total population of non-penal institutions in the State (mentally ill, retarded, schools for the blind and the deaf, etc.) is approximately 10,000. The percentage of eyeglass wearers varies appreciably among the institutions; it is reasonable[9] to assume that 20 percent of all non-penal clients wear them. Assuming further that, on the average, each institutionalized person wearing glasses requires a new set every three years, the estimated annual State purchase of eyeglasses is 10,000 x 0.20 x 0.33 = 660 sets per year. Making similar assumptions for the penal population (approximately 3,000), one obtains an estimated State purchase volume of 200 pairs per year. The overall total State sales market for the Somers' Optical Shop is thus estimated as 10,000 eyeglasses at $17.50 per copy or $175,000 per year.

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[9] More than 50 percent of the non-penal State wards in Connecticut are retarded persons. The incidence of eyeglass wearers among these is very high; estimated at between 20 percent and 40 percent. This alone would account for at least 15 percent of all State wards wearing glasses. An estimate of 20 percent incidence for State wards is thus quite conservative.

### (2) Other Markets

There is no municipal market for the Somers' Optical Shop in Connecticut. Although municipalities do pick up some medical costs for welfare clients on occasion, these are strictly related to emergencies and the State reimburses 90 percent of these emergency medical expenditures to the towns.

The total annual potential market for the Somers' Optical Shop is thus currently about $175,000 per year and growing.

### c. Dental Laboratory

The potential annual State-use market for the Somers' Dental Lab is at least $700,000. This shop is an excellent candidate for ECON's Free Venture Model for Correctional Industries.

The State market for the Somers' Dental Lab is quite simple to describe: It is defined by the requirements of the State's welfare clients and the State's institutional clients for dental work. Services for welfare clients are paid by the Department of Social Services. A portion of the cost of these services is in turn reimbursed by the Federal Government through matching funds. The Department of Social Services provided well documented figures of expenditures for dental services.

Welfare clients receive dental care in two different ways: from private dentists and from dental clinics.

In fiscal 1975 the figures were as follows: 64,000 patients received 260,000 services, amounting to $3,137,000 from private dentists; 3,500 patients received 16,000 services from dental clinics, for a total of $184,000. Separate figures for lab charges are not recorded by the Department. It was estimated by professionals in the Department that 25 percent of the above dental costs were associated with dental laboratory services. Examination of a small sample of individual bills corroborated this estimate. However, we prefer to use a more conservative figure for an estimate of dental laboratory services. This is because the records of the Department of Social Services indicate that an average dental bill amounts to only about $50, which means that many bills are for relatively small amounts, probably indicating mostly diagnostic work and fillings. Since the Department does not pay for inlays for cavities, but only amalgam fillings, these low cost bills would not involve lab work. Thus, we would reduce the estimated fraction of dental bills contributed by lab charges from 25 percent to 20 percent. This procedure yields estimates of $3,137,000 x 0.20 = $627,400 per year for lab work from private dentists and $184,000 x 0.20 = $36,800 from dental clinics, for a yearly total of lab charges of $664,200.

In addition to services paid for by the Social Services Department, there is a clinic operated by the

State's dental school which includes a dental lab. Since the purpose of the lab is instructional, it is unlikely that any work could be diverted from it. We have, therefore, decided to discount the dental school clinic entirely as a source of business for the Somers' Dental Lab.

The State also provides dental care for the clients of State institutions of all kinds. The total population of all non-penal institutions in Connecticut is approximately 10,000. We estimate an average expenditure of $25 per year for dental care for each State ward (non-penal). This compares to $50 annually for those welfare clients who seek dental care in any one year and $20 annually per person for all welfare clients (the welfare population in Connecticut is 200,000 of whom approximately 80,000 seek dental care within one year). Because of the age and nature of the non-penal State institutional clientele, we have conservatively assumed that only 10 percent of dental expenditures for this population is for lab services. This yields a conservative estimate of 10,000 x $25 x 0.10 = $25,000 annually for dental lab services for non-penal State institutional clients.

Currently, the market served by the Somers' Dental Lab is limited to the State's penal population. Production figures obtained from the Department of Correction indicate an annual volume of approximately $16,000 for each of the last three years. However, both the cost and physical volume calculations for the Somers' Dental Lab are currently being revised; adjusted figures may soon be available. Based on a penal population of approximately 3,000, the current sales volume figures suggest an expenditure of $5 per inmate per year for dental laboratory work.

### (1) Market Summary

Summing up, the total market for the Somers' Dental Lab is estimated conservatively to be $664,200 + $25,000 + $16,000 = $705,200, or $700,000 in round figures. No extensive marketing effort would be required in order for Correctional Industries to achieve this volume of business. Distribution channels and procedures would have to be established, as well as procedures to ensure the quality and timeliness of the work.

### (2) Additional Products Using Present Dental and Optical Laboratories' Skills

A potentially profitable venture that the Correctional Industries should consider is the filling of prescriptions for hearing aids. The required skills and organization for this type of activity are very similar to those available in the Optical and Dental Shops at Somers, and the market is the same--namely the Connecticut Department of Social Services on behalf of the State's welfare clients. At present the market is not large, but the current markup in the industry is high, thus allowing a large per unit profit even if the cost to the Department of Social Services is reduced.

There is also a large long-term growth potential in this market.

The Department of Social Services pays for hearing aids and associated services (diagnosis, testing, fitting, etc.) for welfare clients in the State who require them. During calendar year 1975 this amounted to $150,000. The average cost per welfare client, including the hearing aid itself, was $350. Of this, approximately $100 is applied to the service component, leaving $250 for the hearing aid itself.

The following cost and price data for hearing aids comes from a recent exhaustive report by the DHEW Interdepartmental Task Force on Hearing Aids, as quoted in the June 1976 issue of Consumer Reports. All of these figures compare closely with those provided by systems analysts in the Connecticut Department of Social Services and with figures developed by Consumer Union in 1971. Contrary to the rising trend in the cost of living, the cost of hearing aids has shown a slight decline over the last few years. This is attributable to the reduction in prices of transistors and other electronic components, as evidenced in the drop in prices of transistor radios and calculators.

The cost of the component parts for hearing aids averages less than $30. Labor, advertising, and promotion add another $45, giving a total manufacturing cost of approximately $75. Accordingly, wholesale prices for an average device range from $80 to $140. Even these average figures are generous and can be sharpened by knowledgeable buying with no loss in quality of the end product. The design and production of a hearing aid is relatively simple; it consists essentially of the audio amplification section of a transistor radio plus a microphone. A molded earpiece is added to this and customized to fit the recipient.

The Correctional Industries could fill prescriptions for hearing aids with little difficulty. This would involve producing the customized molded earpieces and the selection, tuning and calibration of the appropriate audio device. The molding of the earpiece is a technology very similar to some of the processes currently employed in the Dental Shop. The other activities could be carried out conveniently in the Optical Shop, particularly since some hearing aids are directly incorporated into eyeglass frames. By providing all of the above services, the Correctional Industries could receive not only the $250 average which Social Services is currently paying for the devices, but by molding the earpiece, they could also realize an additional $25 from the $100 service component of the current $350 average charge per client. The Correctional Industries could thus average $275 per hearing aid prescription. The costs to the Correctional Industries would initially be in the range of $100 to $150, decreasing as experience and volume increase.

The potential market for this venture includes the Department of Social Services plus the penal and non-penal institutional population in Connecticut. Based on calendar 1975, the potential volume from the Social Service market would have been approximately $118,000 (430 clients x $275). Profit during this period would have been in excess of $54,000 (430 clients x $125), based on an estimated cost to Correctional Industries of $150 per device.

The additional volume and profit from the institutionalized population have not been estimated at this time, but they could be appreciable. This population is approximately 10,000 and includes schools for the deaf as well as about 5,000 retarded persons who have a very high incidence of audio problems, 20-30 percent according to some sources.

The long-range potential market is considerable. According to the DHEW Task Force, 7 percent of the population suffers from some hearing loss. The current welfare population in Connecticut is about 200,000. If the incidence among this population is assumed to be average, this means that approximately 14,000 welfare clients have some hearing loss. Of course not all of these persons can be helped by using hearing aids. On the other hand, the incidence of hearing loss among this population may be much higher than the national average because of the predominance of the elderly among welfare clients. Hearing loss is more common among people over 65.

The market will also increase as hearing aids become more acceptable socially (this has already occurred in many European countries) and as prices drop, which although not affecting welfare clients directly since they do not personally bear the cost, will affect industry-wide production volumes, and therefore the costs the Correctional Industries have to pay for component parts.

### d. Small Engine Repair Shop

The results of the market study for the Somers' Small Engine Repair Shop indicate a relatively small market among State and municipal institutions. This shop would not be a candidate for a Free Venture prison industry unless the means could be found to gain access to the open market. We recommend that Correctional Industries try to establish this shop as a service franchise of an engine manufacturer or retail firm, e.g., Briggs & Stratton, Sears, Roebuck and Company.

#### (1) State Agencies

The largest use of small internal-combustion engines is for small lawn mowers, followed by snow blowers, power saws and outboard motors. The State and municipal agencies charged with maintaining large area grounds and rights-of-way are the main potential customers for the repair and overhaul of small internal-combustion engines. The study team sought to obtain estimates of the number of lawn mowers in use among the most likely user agencies: Department of Public Works (public buildings), Environmental Protection Agency (parks), and Department of Transportation (highways). However, in the process of polling the principal State and municipal agencies involved, several facts quickly became apparent.

- The agencies with substantial grounds to maintain use large lawn mowers pulled by tractors with power ratings well above the 14 HP generally regarded as the limit for small engines that are repaired in the Somers' shop.
- The Department of Transportation, by far the largest single user, has adequate facilities to maintain and overhaul vehicles and motorized equipment of all kinds.
- Many small-engine devices are highly seasonal (i.e., mowers, power saws), and characterized by a very low duty cycle (used for short time periods and subject to little wear, such as snow blowers), or not used commonly by Government agencies because of their mostly recreational nature (i.e., outboards, snowmobiles).
- The seasonality of lawn mower use means that they are idle during off-season, and that the

operating personnel are not busy during off-season. Thus, the operators have developed the skills necessary to repair these machines themselves, and they spend a good part of their off-season time repairing and preparing their equipment for in-season use.

All these factors indicate that there is no large population of small engines among Government agencies in the State that is an attractive economic market for the Somers' Repair Shop.

It is possible that among the many State and local agencies that own and operate small lawn mowers, there may be some agency that needs occasional assistance with servicing. This market, besides being small, is also very disaggregated and erratic. It was not judged productive to spend substantial time and effort obtaining a reliable numerical estimate of this market, nor for Correctional Industries to attempt to develop it.

(2) Marketing

The Small Engine Repair Service could be marketed as an additional service when State and municipal agencies are solicited for other Correctional Industry products and services.

The viable market for the Somers' Small Engine Repair Shop would seem to lie in the private (unconstrained) sector. No marketing effort in this area has as yet been initiated by Correctional Industries.

### e. Typewriter Repair Shop

The potential annual State-use market for the Somers' Typewriter Repair Shop is conservatively estimated to be $700,000. This shop appears to be a good candidate for ECON's Free Venture prison industry.

#### (1) Three Tiered Marketplace

The market for the Typewriter Repair Shop can best be divided into three tiers, depending on the degree of commitment to the market Correctional Industries and the shop are prepared to make.

- Tier One - The market that the shop can serve with its present organization and degree of expertise.
- Tier Two - The market which would call upon the present shop's expertise, but would also require field service.
- Tier Three - The market for repairs of electric typewriters.

The first tier consists of all manual (non-electric) typewriters in those State and municipal agencies which are willing to have their machines serviced off-site. Off-site typewriter repair (at Somers) is the only service offered by Correctional Industries at present. In some cases a "loaner" typewriter may be required by an agency while one of its machines is being serviced.

Part of this segment of the market includes a number of calculators which the shop is well equipped to handle.

### (a) State Agency Requirements

To determine the market for overhaul and repair of manual typewriters, it is necessary to establish the number of such machines in State agencies. Unfortunately, no inventory of State owned machines could be identified; therefore estimates were solicited from knowledgeable State personnel. The State Purchasing agent responsible for office equipment purchase estimates that the State owns 7,500 typewriters, of which 30 percent are manual, thus yielding a count of 2,250 State owned manual typewriters. We estimate, conservatively, that these machines need to be overhauled on the average once every four years at an estimated cost of $40 per service. This market comes to 2250 x .025 x $40 = $22,500 per year. This is not a very large sum, but it is substantial compared to service revenues of $4,000 for fiscal 1975 reported by Correctional Industries in their annual report.

The market for this first tier is declining due to the replacement of State machines in the proportion of 85 percent electrics and 15 percent manuals. Correctional Industries' annual reported sales volumes have been declining steadily for the last four years, from $9,600 in 1972. Assuming that the total number of machines remains constant and that the replacement ratio does not increase in favor of electrics, the number of manuals will gradually fall to half of what it is today.

### (b) Other Institutional Markets

In addition to State agency requirements, there are undoubtedly a substantial number of manual typewriters in municipal agencies throughout the State. We chose to discount this market segment entirely because of its elusiveness and disaggregation.

However, there is a large easy-to-service population of manual typewriters which the study team has identified that could constitute an entirely new market for Correctional Industries. These are the machines in typing classrooms in school systems all over the State.

The number of machines in school in typing classrooms was estimated as follows. There are 771 typing classrooms in the State[10] having an average of 30 manual typewriters each, or 23,130 machines in total. Current rates of repair range from $10 to $20 a year per machine[11], with the higher rate of $20 per year being the level many schools would prefer to maintain. This is needed because of the abuse and vandalism to which these machines are exposed. The lower level of $10 prevails in many districts only because they have not found service agencies willing and able to perform maintenance on the scale desired. Taking a middle figure of $15 a year per machine, we estimate an annual sales potential of approximately $350,000 for repair of manual typewriters in schools (teaching machines only).

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[10] Data obtained from the Department of Education.

[11] This information was obtained from discussions with school and municipal business officials.

Although not a very high volume in absolute terms, it is nevertheless very large when compared to past or current sales volumes for this industry. Also, this market segment is not likely to decline in that the manual machines will not be replaced by electrics because of high purchase and service costs. Because of the way in which these machines are used, they can only be serviced in summer which produces a seasonal load. However, the logistics are favorable. A truck could pick up at least 20 or 30 machines from a school or district for overhaul at one time. It may also be possible to arrange to have these school machines serviced during weekends if prompt pickup and delivery can be arranged.

The Correctional Industries' shop currently does virtually no business with local government agencies, including schools. Competition for the market in this tier consists of the Controller's Office in the State Government which operates a free typewriter repair service in the Hartford area for State owned manual machines only (does not service schools). The exact volume of this free shop is not known, but it seems modest. This shop employs 6 to 8 typewriter mechanics.

The Typewriter Repair Shop is in an excellent, if not unique, position to service manual and other "obsolete" machines. Recent visits to the shop revealed that they continue to receive substantial numbers of machines of all types (manuals, electrics, mechanical and electromechanical calculators) declared "beyond repair" by the State Controller's Office and by the Federal General Services Administration. These machines provide a source of parts that are no longer being manufactured and are either unobtainable or require special orders. In addition, some of these machines can still be rebuilt; the shop might actually be in a position to sell reconditioned machines. This reconditioning activity could provide fill-in work during slack periods. Correctional Industries also has a large one-time supply of typewriter spares acquired from the Federal institution at Danbury, Connecticut several years ago when the Typewriter Repair Shop there was closed.

### (c) Calculator Repairs

Correctional Industries also provides repair and overhaul service for electromechanical calculators. These machines are rapidly being phased out as the machines are replaced by electronic ones at a fraction of the cost and which, therefore, require very little maintenance. Here again the schools provide a strong continuing market for the same reasons that they continue to use manual typewriters. These machines are in place, and they are quite rugged physically; they are heavy and are not readily marketable. Theft and vandalism are therefore minimized. Also, it is very often easier for school administrators to obtain "operating" funds for repair and overhaul than "capital" funds for replacement with less expensive electronic calculators. The school and local business officials interviewed were eager to have Correctional Industries take over maintenance and repair of these machines.

The size of the market for repair of electromechanical calculators in schools can be estimated from available data. There are 146 high schools in the State, each having an average of 15 machines per school. This implies a total of 2,190 machines. In addition, each high school has at least one office calculating machine also. Assuming one office calculator for each high school, this increases the count to approximately 2,300 machines. Repair service could exceed $20 a year for each machine, yielding approximately $50,000 of additional business annually. It should be noted that these machines vary considerably in their type, or make, and model. Primarily, they are adding machines and calculators but include some cash registers and accounting machines.

Summing up, the first tier market for repair of manual typewriters and calculators amounts to $22,500 +

$350,000 + $50,000 = $422,500 annually, plus an unspecified amount from municipal agencies other than school systems.

### (2) The Second Tier

The second tier market assumes the same level of skill on the part of the shop but requires a field service capability. This would expand Correctional Industries' potential market to include service and maintenance contracts for manual typewriters and calculators.

A caveat on skill levels is required. Although the Somers shop has adequate numbers of personnel skilled in the repair and overhaul of manual typewriters, the same is not true for calculators. The shop supervisor feels that typewriters of different makes are sufficiently similar so that skills are transferable from machine to machine. Different brands and models of calculators have unique characteristics, and repair of these requires more intensive training. The shop supervisor feels that if the demand is there, there are sufficient men available that necessary skills can be developed without undue difficulty.

Service contracts for manual typewriters currently run $22 to $27 per year per machine, for an average of $25. Thus service contracts for the State's 2,250 manuals would be worth 2,250 x $25 = $56,250 annually. Since this would be largely in lieu of four year overhauls, the additional market would be the difference: $56,250 - $22,500 = $33,750 annually for additional repair. In these figures, we have not considered the market for service contracts for manuals in municipal agencies.

The total increase in business due to this second tier market is thus $33,750 annually, additional to Tier 1 estimates plus possible service contract to sundry municipal agencies. This second tier would be an intermediate stage and preparation period towards the third tier.

### (3) The Third Tier

The third tier consists of electric typewriters. Entering this market would require extending and improving the level of skills and expertise possessed by the shop in addition to providing service in the field.

Electric typewriters are being overhauled at the shop at present. However, the users of electric typewriters are often unwilling to give them up even for a few days even if a loaner is provided. IBM and the other organizations that service electrics do so on-site so that if Correctional Industries wants to obtain some of this business, it has to compete not only in price but also in service. In short--for competitive reasons--it is essential that electrics be serviced in the field, except for major overhauls.

The number of State owned electric typewriters has been estimated as 70 percent of the 7,500 total State owned typewriters, or 5,250 electric typewriters. The average annual cost to the State of service contracts for these machines is $50 per machine. Thus, this market is potentially worth 5,250 x $50 = $262,500 annually. As noted earlier, the electric typewriter market is still growing slightly, due to the replacement rate of old State owned manual typewriters with 85 percent new electrics.

The skills involved for the repair of manual and electric machines are quite similar. Correctional Industries has been doing a steady (if limited) amount of work on all makes of electric typewriters. It is the shop supervisor's opinion that the difference in skill levels is not substantial, and that a worker with experience on manuals can graduate to electrics in a short time, measured in days rather than weeks.

Obtaining new parts from manufacturers sometimes involves delays; however, it should be possible to improve this situation through talks with the companies involved. Also, there is access to used parts from the many salvage machines available, which also include electrics of all kinds.

### (4) Market Summary

Summing up, the total potential market for the Correctional Industries Typewriter Repair Shop, consisting of the combined total of the three market tiers described is $422,500 + $33,750 + $262,500 = $718,750 annually. This total is considered to be conservative as it excludes the market segment comprised of typewriters owned by all municipal agencies in the State outside of typing classrooms.

An increase in business from the $4,000 to $10,000 level to nearly $1 million a year implies a radical change in the organization of work, including expansion of facilities, manpower, etc. It will take concerted effort over an extended period of time to achieve such a goal. This study shows that there is a very large market for a typewriter repair facility, even under the constrained market conditions existing at present. The supervisor of the Correctional Industries' Typewriter Repair Shop has contacted a number of organizations for additional business, entirely on his own initiative. However, we believe that in order for Correctional Industries to obtain a foothold in these expanded markets, a substantial sales and marketing effort is required, together with changes in the organization of the shop itself so that both orders and deliveries proceed smoothly.

### f. Furniture Industries

The potential State-use sales market for the manufacture and repair of furniture and related products is quite substantial and provides excellent growth opportunities for the several Correctional Industries shops at Somers.

### (1) State Agency Furniture Purchases

Expenditure data on State agency furniture purchases in fiscal year 1975 were obtained from three sources: State Purchasing Agent, State Controllers' Office (which must approve all State agency purchases of office furniture), and major furniture user agencies of the State. While no contradictions in sales market information were observed among these data sources, the State Purchasing Agent proved to be the most authoritative source, both in terms of documented purchase data and in terms of general information regarding the furniture purchasing patterns of State agencies.

The broad nature of the State Agency furniture market is apparent from Table II-42 which lists all furniture and related commodities purchased by State agencies through the State Purchasing Agent in fiscal year 1975 (with the sole exception of athletic equipment--a small portion of which may be gym mats and other furniture-like equipment). The total variety of furniture and related equipment indicated in Table II-42 cannot be regarded as a market that can be supplied by the Somers' shop at present. A further refinement of these data is required to define the Somers' potential market as a function of its present and recommended capabilities.

## Table II-42

### Connecticut State Agency Furniture And Related Equipment Purchased In Fiscal Year 1975

| Commodity Number | Item | Purchases (thousands of dollars) |
|---|---|---|
| 3712 | Hospital Furniture | 57.4 |
| 3718 | Household Furniture, Metal | 159.7 |
| 3724 | Household Furniture, Reed, Rattan | 121.5 |
| 3730 | Household Furniture, Wood | 104.6 |
| 3732 | Industrial Furniture | 13.6 |
| 3736 | Lab Furniture | 245.2 |
| 3742 | School Furniture | 26.0 |
| 3748 | Mattresses, Pillows, Pads and Cushions | 90.3 |
| 3754 | Merchandising and Display Equipment | 44.2 |
| 3760 | Miscellaneous Furniture & Equipment | 52.4 |
| 3766 | Public Seating Equipment | 37.5 |
| 3772 | Shelving, Partitions and Lockers | 144.1 |
| 7148 | Office Furniture, Metal | 159.1 |
| 7154 | Office Furniture, Wood | 49.0 |
|  | Total | 1,304.6 |

After consultation with State Purchasing Agency personnel, each commodity category was analyzed and purchases were classified into three major categories.

1. "can make" - items that are within the present capability of Somers' shops to manufacture substantially from raw materials, given the existing equipment and available skills;

2. "could make" - items that could be manufactured by Somers' shops with the purchase of some key parts (principally formed metal parts) and/or the acquisition of new equipment designed to make some of these parts;

3. "can't make" - items whose manufacture lies substantially outside of Somers' shops capability now or in the foreseeable future.

Table II-43 provides a list of all the relevant commodities together with breakdowns into the three categories described, both in percentages and dollars. The totals show that approximately 40 percent of all the types of furniture items bought by the State in fiscal year 1975 lies within Correctional Industries' present capability, amounting to over $500,000. An additional 33 percent of all the types of furniture purchased (over $400,000) could be made by Correctional Industries with the purchase of key parts made by outside industry, e.g., metal frames.

The indicated potential market of $900,000 in "can make" or "could make" furniture items refers only to

Table II-43 Furniture Items Purchased by State Categorized by Correctional Industries' Capability to Manufacture the Type--not Quantity--of Furniture Item

| Commodity Number | Item | Total Amt Purchased $000 | Can Make % | Can Make $000 | Could Make % | Could Make $000 | Can't Make % | Can't Make $000 |
|---|---|---|---|---|---|---|---|---|
| 3712 | Hospital Furniture | 57.4 | - | - | - | - | 100 | 57.4 |
| 3718 | Household Furniture | 159.7 | - | - | 80 | 127.8 | 20 | 31.9 |
| 3724* | Household Furniture, reed, rattan | 121.5 | 100 | 121.5 | - | - | - | - |
| 3730* | Household Furniture, wood | 104.6 | 100 | 104.6 | - | - | - | - |
| 3732 | Industrial Furniture | 13.6 | - | - | 100 | 13.6 | - | - |
| 3736 | Laboratory Furniture | 245.2 | 30 | 73.6 | 40 | 98.1 | 30 | 73.6 |
| 3742 | School Furniture | 26.2 | 50 | 13.1 | 50 | 13.1 | - | - |
| 3748 | Mattresses, Pillows, etc. | 90.3 | 60 | 54.2 | - | - | 40 | 36.1 |
| 3754 | Merchandise and Display Equipment | 44.2 | 100 | 44.2 | - | - | - | - |
| 3760 | Miscellaneous Furniture and Equipment | 52.4 | 40 | 21.0 | 40 | 21.0 | 20 | 10.5 |
| 3766 | Public Seating Equipment | 37.5 | 50 | 18.8 | 50 | 18.8 | - | - |
| 3772 | Shelving, Partitions and Lockers | 144.1 | 20 | 28.8 | 30 | 43.2 | 50 | 72.0 |
| 7148 | Office Furniture, metal | 159.1 | - | - | 60 | 95.5 | 40 | 63.6 |
| 7154 | Office Furniture, wood | 49.0 | 100 | 49.0 | - | - | - | - |
|  | TOTALS | 1,304.6 | 40.5 | 528.8 | 33.0 | 431.1 | 26.4 | 345.1 |

*Both these commodities consist essentially of wood furniture.

the types of items that could be supplied by Correctional Industries. This does not imply that Correctional Industries at present could produce the volume of furniture implied by this sizable market. If Correctional Industries were to attempt to produce this volume of furniture, substantial expansion in amounts of equipment, work space and personnel would be required. Moreover, even if Correctional Industries had the capacity to make all these furniture items, it is not necessarily in their financial interest to attempt to do so. The furniture industry is very competitive, and it is unlikely that Correctional Industries could make all "can make" or "could make" items, sell them at competitive price and make a profit. The size of the indicated potential market does demonstrate the opportunity for Correctional Industries to expand selected product lines.

Correctional Industries appears to have some competitive advantages in this area. The State Purchasing Agency estimates that approximately 80 percent of the state-purchased furniture is manufactured out of State, mostly in Michigan and the Carolinas. Most furniture items are heavy and bulky; freight charges thus become an appreciable factor in the final installed price. In an effort to reduce the incidence of freight, many manufacturers ship furniture knocked-down or disassembled. This reduces shipping charges, but requires an additional charge for assembly or installation. The net result is that for many furniture items coming from out-of-state, there could be a final cost advantage of 12-18 percent for Correctional Industries, depending on the item and the distance it might have to travel. Further, from comments made by many of Correctional Industries' present customers, it appears that Correctional Industries furniture has a perceived quality advantage over commercial furniture.

### (2) Other Purchasing Channels

The list of State agency furniture purchases delineated in Table 2 is comprised of only those items procured through the State Purchasing Agent. However, there are other furniture purchasing channels that bypass the State Purchasing Agent--the principal ones being:

1. Federal (and possibly other) grants for specific projects and purposes;
2. State bond issues related to new construction, which include furniture and related equipment; and
3. Agencies not required to go through the State Purchasing Agency, such as the Legislature and the Judiciary.

No centralized source of data for any of these was identified. Although the State Controller's Office must review and approve all purchases of office furniture and equipment--even if they are purchased with non-State (e.g., Federal) funds, records are maintained for only those purchases that involve State funds.

Rough order-of-magnitude estimates were obtained for furniture items under (1) and (2) above from the State Purchasing Agent responsible for furniture and related items. Item (3) was discounted entirely for two reasons:

a. The overall furniture purchases for these two agencies are not very large in any event.

b. There is generally no great urgency in purchasing furniture items for these agencies; therefore, their orders are often placed through the State Purchasing Agent even though there is no requirement to do so. Therefore, such purchases are already included in the State Purchasing Agency's totals.

Furniture and related items purchased with Federal funds were estimated at $500,000 for fiscal year 1975, while those purchases funded through bond issues were estimated at $1 million for the same period. These latter estimates must be regarded as "soft" as they are based entirely upon the informed opinion of an experienced and knowledgeable State Purchasing agent. No attempt was made to obtain separate estimates of furniture purchases from Federal funds or bond issues according to the "can make", "could make" or "can't make" categories previously defined for the Somers' Furniture Shop. If the actual distribution of furniture items across these categories that was observed in Table II-43 is assumed to hold for furniture purchased outside of the State Purchasing Agency, then 40 percent of this additional

$1.5 million could be added to the Somers' "can make" sales potential, and 33 percent of the additional $1.5 million could be added to the Somers' "could make" sales potential.

In summary, the State agency furniture market in fiscal year 1975 was $1.3 + $1.5 million = $2.8 million. Of this total, the potential sales market for the Somers' shop is defined by the total of furniture purchase which Correctional Industries "can make" ($1.0 million) and "could make" ($926,000).

The future market for new furniture for State agencies is quite cloudy, given the present fiscal difficulties of the State. All the State-user agencies with whom we talked have said that furniture expenditures would be sharply reduced in fiscal year 1976. Indeed, in several cases no funds at all had been expended for furniture throughout the first half of this fiscal year.

### (3) State Agency Furniture Repair Market

Furniture Repair is another industry at Somers. Most of this work (80-95 percent) is done for State agencies. The total State market for such services is difficult to define. The State Purchasing agent processes requisitions for furniture repair, but sales volumes for this service have been aggregated under commodity classification 9956 together with unrelated items such as agricultural machinery and communications equipment. The total sales volume recorded under commodity 9956 is

$700,000. We were not able to ascertain what fraction of this amount corresponds to furniture repair. However, we do know that even if the quantitative estimate of contribution of furniture repair to the $700,000 were available to us, it would considerably underestimate the total State Agency furniture repair market. This is because of (1) direct transactions between two State agencies need not be channeled through the State Purchasing agent (much of Somers' present furniture repair business falls in this category), and (2) many furniture repairs are simply not made because of the scarcity of available repair facilities. Both State and local officials have complained repeatedly about the difficulty of locating reliable sources of furniture repair service. Indeed, this is a major reason why Somers has acquired the repair business it presently handles. Much of it comes to Somers unsolicited. An expanded marketing effort would likely produce substantially more furniture repair work for the Somers' shop. Moreover, as most repair work tends to be countercyclical, the furniture repair market for State agencies could rise this year.

### (4) Municipal Markets for Furniture Purchases

Overall figures for direct furniture purchases by local governments could not be obtained because no agency collects this data. Moreover, the diverse nature of municipal governments' purchasing and accounting procedures made the use of sampling techniques impractical. An alternate approach at market estimation was attempted based upon the activity level of construction or major renovation of buildings. Again, data concerning new government buildings--State or local--was generally not available; complete data on Statewide school construction was available. It was thus possible to measure the local government market for school furniture in the State.

Although the school market is only a portion of the local government furniture market, it constitutes a large and easily identifiable market component. Furthermore, this is a market that Correctional Industries has not yet tapped. Finally, school construction data is being collected by the State on a continuing basis because the State finances a substantial part of all such construction through matching grants. Therefore, the State keeps records on overall expenditures as well as detailed costs for each construction project.

For the period between July 1, 1966, and December 31, 1974, total school construction (elementary, middle and secondary) amounted to $588.1 million. A sample of 20 school projects (15 percent of all school construction expenditures) was examined to determine what percentage of overall construction expenditure went for furniture and related equipment--including attached and permanent fixtures such as gymnasium grandstands and other seating, cabinets, etc. The sample indicated that 3.68 percent of project costs were associated with furniture and related equipment. Applying this figure to the total school construction expenditures yields total school furniture expenditures in the base period of $588.1 million x .0368 = $21.6 million. Dividing this amount by eight and one-half years, the length of the base period, we obtain an estimate of the average annual expenditure for furniture of $2.54 million per year. While it is by no means certain that Correctional Industries is presently capable of supplying the full variety of items required, to say nothing of the quantities involved, the size of this market does emphasize the potential importance of the school market to Correctional Industries.

In addition to new construction there is a similar market for furniture in major school renovation projects. The data available here are less detailed, but the estimates (from the same source as the previous data) are quite reliable. The cost of a major renovation averages about 50 percent of new construction, and there are about half as many school renovation projects as there are new construction projects each year. Thus, the average annual value of renovations is approximately $145 million for the base period. Expenditures for furniture and related equipment range between 2 percent to 3 percent of total project renovation cost. Using the more conservative figure of 2 percent and dividing by the base period (8.5 years), we obtain an estimated annual market of $350,000 for furniture and related equipment associated with school renovation projects.

Adding the two furniture purchasing figures (furniture for new school construction and for renovations), we obtain a total market for school furniture of $2.54 million + 0.35 million = $2.89 million per year. This figure of $2.89 million is the overall market, again without breakdown into categories comparable to those in Table II-43. Judging from Table II-43 (items 3742, school furniture, and 3766, public seating equipment), we might estimate 50 percent of this to be in the "can make" category and another 50 percent in the "could make" category. Instead we have chosen a more conservative approach and taken the split suggested by the totals of Table II-43; that is 40 percent for "can make" and 33 percent for "could make". This yields 40 percent x $2,890,000 = $1,156,000 for the "can make" category and 33 percent x $2,890,000 = $953,700 for the "could make" category in the local school furniture market.

Whether Correctional Industries can capture this market is another matter entirely. Not only would this require a much greater marketing effort, but it requires an unusual marketing approach. This market is not sold by approaching the school officials--by that time it is much too late. The marketing effort has to be addressed to those responsible for the original designs and equipment specifications (namely architects and construction committees).

### (5) Repair Market at Local Level

In addition to the market for new furniture provided by construction and renovation projects, local governments in general and school systems in particular also provide a large market for furniture repair. This market is more likely to be within the immediate grasp of Correctional Industries (a substantial amount of Correctional Industries' current business is the repair of school furniture already). An indication of the size of this market can be obtained by the following considerations: the grade school and high school population of Connecticut is approximately 650,000--this means 650,000 desk/seat combinations or their equivalents in desks and chairs, plus 20,000 teachers' desks and chairs. Based on conversations with school and municipal business officials, repairs of $1 per year per desk/chair combinations appear extremely conservative (especially in view of recent increases in vandalism and in the cost of repairs). This would yield a market of $670,000 per year in furniture repairs for schools alone. This market can be approached in a more traditional manner than the new construction market.

### (6) Market for Inmates' Craft Shop

In addition to Correctional Industries themselves, there exists the efforts of many individual inmates to produce and sell items designed and made individually for their own account. These items are exhibited and offered for sale at the institutions and also at the Prison Store in a small shopping center in Bloomfield. The most popular material for these products is wood; many items are small pieces of furniture and furniture-like articles (i.e., cribs, stools, benches, etc.).

Both the State and local governments often have salvage wooden furniture which they sell at very low prices. Many of these desks, tables, etc. could be refurbished and restored and sold at much higher prices. Their age and original design is highly valued by many people. Correctional Industries is equipped to carry out this work; however, under present statutes it would have to be clarified whether a piece that derives most of its value from correctional labor can be sold on the open market. A possible solution might be for interested inmates to purchase some of the most promising salvage pieces, restore them, and offer them for sale through the Prison Store. The value added by such work would appear to be much higher than what many inmates can accomplish at present with relatively small pieces. It would also offer a productive outlet for the creative efforts of more inmates than currently use the craft shops. Volume for this operation would depend upon two factors:

1. The number of inmates that might participate in this activity, and

2. The number of pieces of furniture of sufficient inherent quality to make it worthwhile to restore them.

We have not examined current inventories of salvage furniture, but there seems to be enough available to warrant starting a small effort with some of the inmates who are currently working on wood in the craft shops. This operation could start on a small scale and then expand as experience is gained by all concerned.

## C. Production Analyses

### 1. Introduction

Production analyses were carried out at the following shops in Somers prison:

- Print Shop
- Optical Laboratory
- Dental Laboratory
- Small Engine Repair Shop
- Furniture Shop.

The primary purpose of the production analyses was to examine each industry in terms of those factors which directly affect the quality and rate of production.

In the following sections, the results of the surveys' findings and recommendations for each shop are presented. Each shop survey consisted of a (1) Production Analysis, (2) Operations Analysis, and (3) Worker/Labor Analysis. The following section outlines general findings of the production analysis. Some overall findings were made which pertained to all shops. Manpower scheduling and control, followed by marketing, are discussed in this section. Subsequently, shop-by-shop discussions are presented. An example of the production analysis package used to obtain information on the production operations of each shop is provided in Appendix D.

After findings are presented, general observations and specific recommendations are presented--related to improving the manpower scheduling and control problems and the marketing problems evident in all shops. Finally, specific shop-by-shop recommendations are made.

### 2. Findings

#### a. Manpower Scheduling and Control

The primary production problem with Somers' industries is that of manpower scheduling and control. During the normal operating hours of the day, any inmate may leave a shop for a large and diverse number of reasons. Rap sessions, haircuts, visits, classification meetings, commissary visits, sick call, and other activities are all sources of constant interruption in the steady flow of production. While the shop supervisors are, to a certain extent, helpless to prevent these interruptions, the loss in man-hours of production is extensive.

Adding to this problem is the fact that the workers are not required to punch in or out of the shop at any time. Workers straggling into the facility an hour after they are due and who also leave frequently during the day will be paid the same wages as those workers who arrive early and work the entire six hours. This situation tends to add to, or even encourage, the loss in man-hours of production time each day.

A third factor promoting the loss of production time is that of institutional scheduling. Because men are released by individual cell blocks each morning, workers may arrive at the facility as much as 45 minutes apart. Additionally, the recall procedure at the end of the day cuts an average of 20 minutes out of every work day, as the workers must clean up and be prepared for recall when it is announced.

It is important to note that these factors relate to a six hour work day. It is not inconceivable that the work day could be extended to seven or eight hours per day, which would tend to offset lost man-hours due to scheduling. The extent to which scheduling and control of working time affects production time was measured as a part of the shop-by-shop surveys. This loss in potential manhours is listed below by shop.

- Print Shop - 315 manhours of production work are lost each week in this shop, representing 52.5% of the presently available work period.

- Optical Laboratory - 165 manhours of production are lost weekly, which accounts for 61.11% of the potential work week.

- Dental Laboratory - 270 manhours are lost weekly. This figure reflects 60% of the total number of potential manhours per week available to this industry.

- Small Engine Repair Shop - even if the industry is at full capacity (13 workers) 162.5 manhours per week would be lost, accounting for 41.66% of the potential weekly man-hours available.

- Furniture Industries - the Upholstery division presently loses 325 potential manhours weekly; this estimate represents 41.66% of the division's total weekly potential manhours. Additionally, the Finishing and Refinishing division loses 525 potential manhours each week, and the Cabinetmaking area gives up 362.5 potential manhours weekly. These figures represent a loss for the two divisions of 50.00% and 54.92%, respectively.

b. Marketing

A second major problem affecting all Somers shops is a lack of market for the goods produced. No marketing efforts have been undertaken to identify and secure new sources for industry production and existing channels of sales have not been fully exploited. This lack of marketing effort has an impact on production efficiency by reducing demand for products to the extent that improved production techniques which would reduce costs and increase rates are foregone in the interest of keeping the industry workers active to the greatest extent possible. More efficient production techniques require greater volumes.

### 3. General Findings - Shop-by-Shop Review

In addition to the general findings outlined above, specific Production, Operation and Worker/Labor Analyses were performed on a shop-by-shop basis. The findings for each shop are outlined below.

### a. Print Shop

#### (1) Equipment and Workplace

Based upon the equipment inventory and related job capabilities of the printing facility at the present time, it was found that an equipment deficiency existed in the area of fastening/binding. The saddle-stitcher presently in use is homemade, and of questionable value. Additionally, the facility is completely unable to produce individual carbon-insert-type forms.

Although subassembly and fastening procedures were usually appropriate, collating activities were slower than desirable. Large pamphlet jobs were a hardship in terms of production time, and many jobs which might have been bid upon could not be done due to the slow collating procedure.

Observed packaging of completed jobs was found to be good. Quality control efforts on the part of the two supervisors were found to be existent but slightly lacking. Somewhat more attention should be paid to the various jobs by the supervisors, but this will be somewhat difficult given the present number of men presently working in the facility as well as the volume of work presently required. Part of this problem, however, stems from the fact that both supervisors participate in the present work efforts, as opposed to supervising and allocating the various job tasks.

Scheduling and record maintenance within the shop were found to be adequate. Activity and manpower assignments were judged to be good to excellent, with a minimum of overmanning observed. Receiving and shipping records within the shop were found to be good.

Materials handling in this facility was all manually achieved and transportation distances were appropriate. Materials containers were judged to be adequate for their intended purposes.

The supervisors' experience and background were judged to be excellent. Likewise, their attitudes and knowledgeability are considered excellent.

### (2) General Worker/Labor Analysis

Results of the general worker/labor analysis revealed mean ratings slightly higher than might usually be expected in the areas of work quality and absence rate, based upon the literature and previous assessments in other correctional institutions by ECON's production analyst. These findings may be directly attributable to the attitudes and enthusiasm exhibited by the shop supervisors. Unusually low mean ratings were recorded for job skill transfer and job demand. These findings were attributed to the fact that most of the workers chosen had not yet completed training (two, in fact, were relatively new; had these individuals been released, their present skills would be minor as compared to outside demands). Their projected skills could not be accurately assessed, given variances within anticipated release dates. A complete profile of all workers assessed is presented on the following graph (Figure II-10).

### (3) Specific Worker/Labor Analysis

Results of the specific worker/labor analysis revealed an efficiency range of 50 percent (for an unskilled worker) to a range of 91.40 - 97.49 percent (for a skilled offset press operator). The mean efficiency range for the five workers assessed was found to be 66.83 - 71.97 percent, given the one low figure for the unskilled worker. When this rating was removed to examine the skilled workers only, the mean efficiency range was found to be 71.03 - 77.46 percent which was judged to be very good to excellent.

## b. Optical Laboratory

### (1) Equipment and Workplace

The jigs, fixtures, and templates observed were in excellent condition, and used wherever applicable. Subassembly and final assembly procedures were consistently judged to be up-to-date. Quality control efforts were more than adequate, and the rejection rate was extremely low.

Scheduling and record maintenance was adequate to more than adequate. A tribute to the industry supervisor was that although a definite lack of work existed, no overmanning of job tasks was observed. Receiving and shipping records, maintained by the main Industries office, were fair. All materials handling observed was manual in nature;

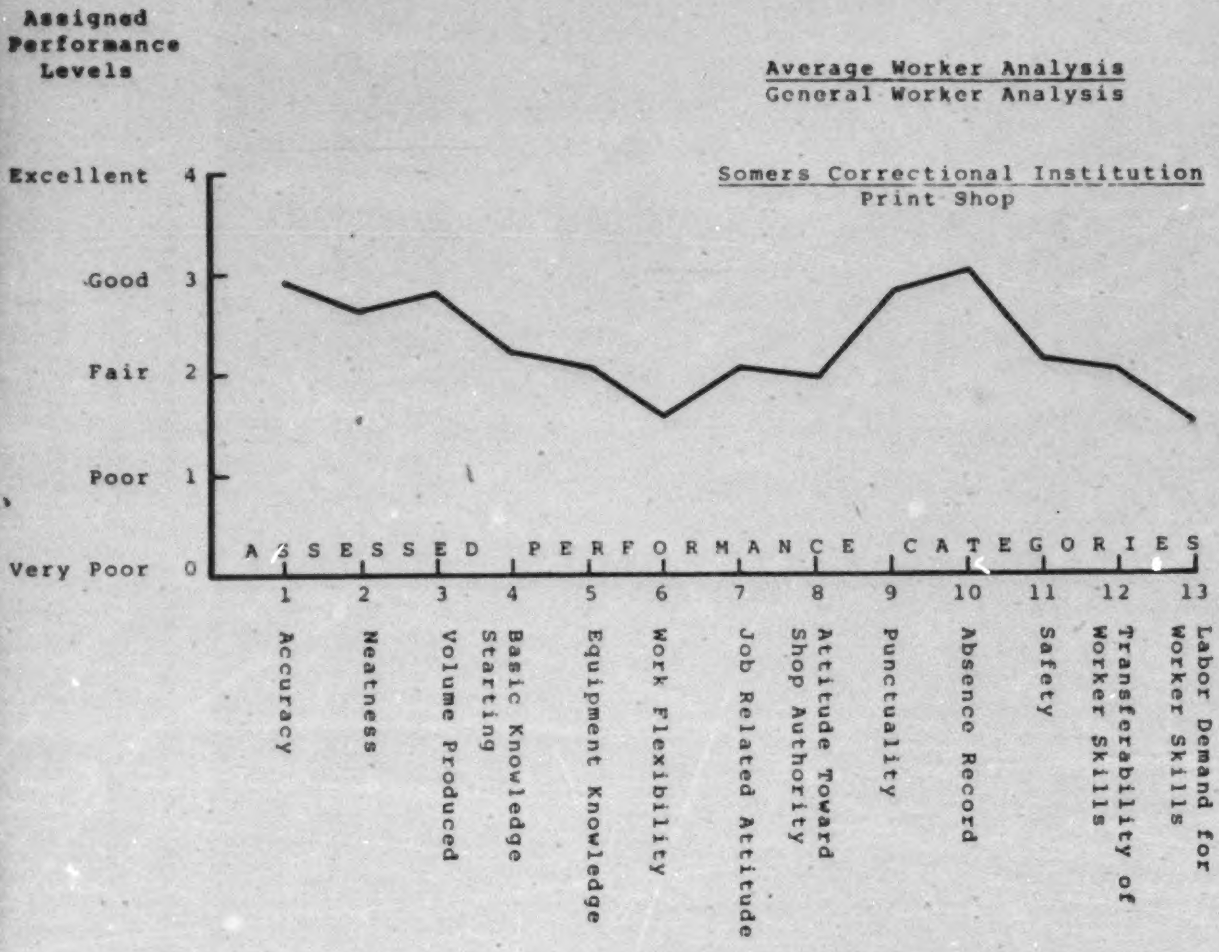
Assigned Performance Levels
Average Worker Analysis
General Worker Analysis
Somers Correctional Institution
Print Shop
Excellent 4
Good 3
Fair 2
Poor 1
Very Poor 0
ASSESSED PERFORMANCE CATEGORIES
1 Accuracy
2 Neatness
3 Volume Produced
4 Basic Knowledge Starting
5 Equipment Knowledge
6 Work Flexibility
7 Job Related Attitude
8 Attitude Toward Shop Authority
9 Punctuality
10 Absence Record
11 Safety
12 Transferability of Worker Skills
13 Labor Demand for Worker Skills

Figure II-10

transported distances were appropriate and handling containers were adequate.

The supervisor's ability was evaluated as excellent, as was his attitude and knowledgeability.

With the exception of one piece of equipment, all of the machinery and equipment observed was operational and virtually brand new, based upon the general equipment analysis.

The lighting in this facility was fluorescent in nature, and was assessed as being very good to excellent. Likewise, the heating and ventilation were found to be good to excellent, and no unnecessary non-equipment hazards were observed.

### (2) General Worker/Labor Analysis

Results of the general worker analysis revealed extremely impressive data regarding the knowledge, skills, attitudes and motivation of the workers. Although every worker needed training badly when first entering the facility, ten of twelve mean assessment levels were equal to 4.0, based upon the evaluation of the industry supervisor and the assessments of this observer. A complete profile of all workers assessed is presented in Figure II-11.

### (3) Specific Worker/Labor Analysis

Results of the specific worker analysis reinforced earlier contentions related to the efficiency and skills of

Average Worker Profile
General Worker Analysis

Somers Correctional Institute
Optical Lab

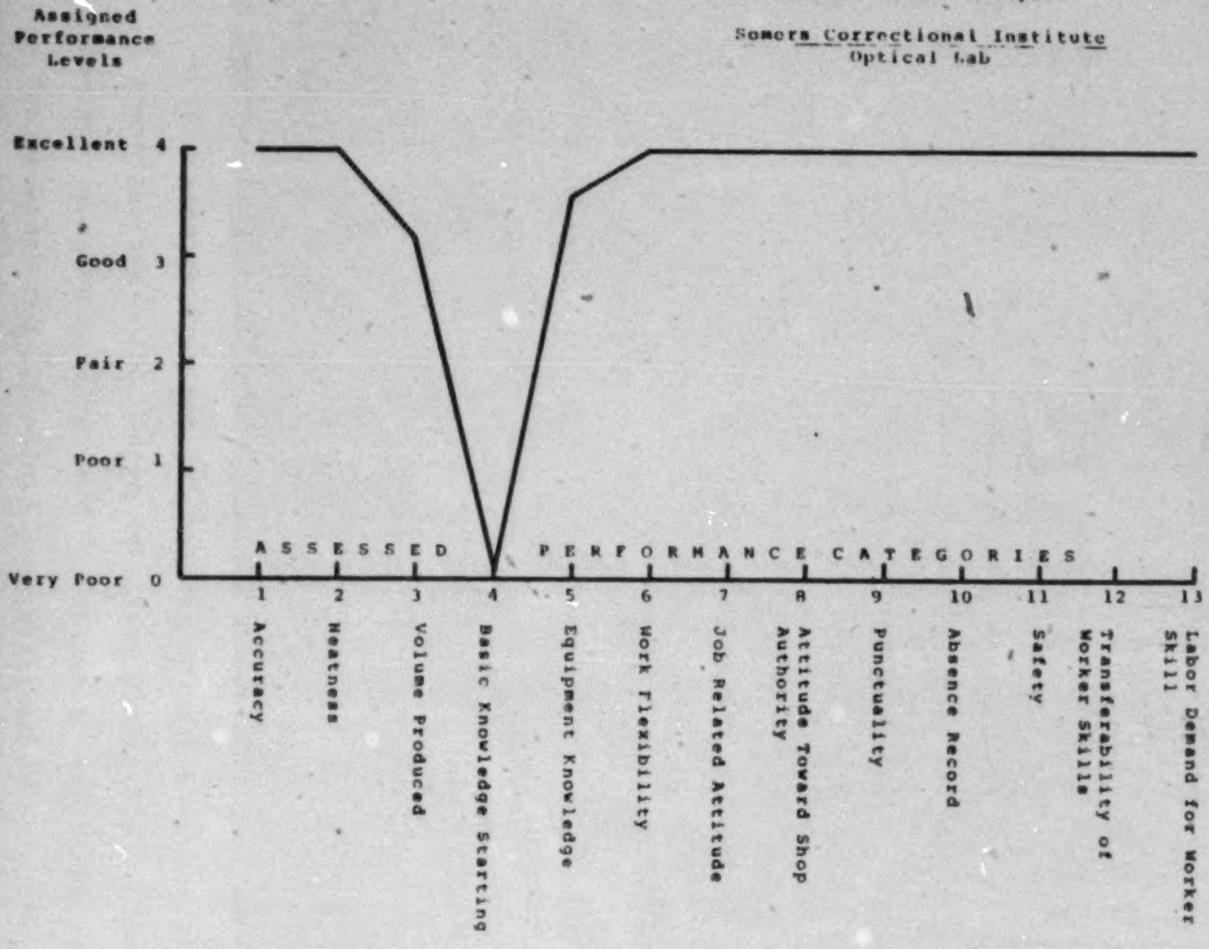

Figure II-11

the present work force. Using 3 to 4 workers, the efficiency level of the work performed based upon a comparison of a standard time and the actual observed time was found to be 96.44 percent, extremely high for an industry, in or out of prison.

### c. Dental Laboratory

#### (1) Equipment and Workplace

The tools, jigs, and fixtures observed were in very good condition, and used wherever applicable. Final and subassembly procedures were judged to be up-to-date. Quality control efforts were found to be adequate to more than adequate, although an estimated rejection rate of 5-14 percent was admitted by the supervisor. Scheduling and record maintenance was adequate; work assignments were judged to be fair due to a general lack of work. Receiving/shipping records were good. In terms of experience and knowledgeability, the supervisor was rated as excellent; additionally, the supervisor's attitude was judged to be good to excellent.

An assessment of the present facility's equipment revealed that four units, a model trimmer, a perflex heater, a heliarc casting unit, and the furnace were operating at a 50 percent efficiency level, or less. All other equipment viewed was fully operational. The furnace, however, was not only found to be operating inefficiently, but was assessed to be unsafe in its present state.

The lighting fixtures in this facility are fluorescent, and were judged to provide fair to good lighting. The heating was found to be excellent, but the ventilation was found to be poor. No unnecessary non-equipment hazards were noted.

### (2) Worker/Labor Analysis

Results of the general worker analysis revealed that the employees of the dental lab facility are, on the whole, average in terms of other workers reviewed. On most of the variables, the mean values for the workers evaluated were approximately 2.0. On those variables concerned with application of skills to related civilian work, however, the mean values for the workers were fairly high, exhibiting a mean value of 4.00 for skill transfer and a mean value of 3.00 for job demand. A complete summary profile of the workers based upon all categories is presented in Figure II-12.

### d. Small Engine Repair Shop - Equipment and Workplace

The jigs, fixtures, and tooling observed in this facility were in good condition and used wherever applicable. Subassembly and final assembly procedures were up-to-date and generally appropriate. Quality control efforts seemed to be more than adequate, although there was a 15-24 percent rejection rate on completed work which had to be repeated. Scheduling and record maintenance were adequate to more than adequate; activity and manpower assignments were good, and receiving/shipping records were fair.

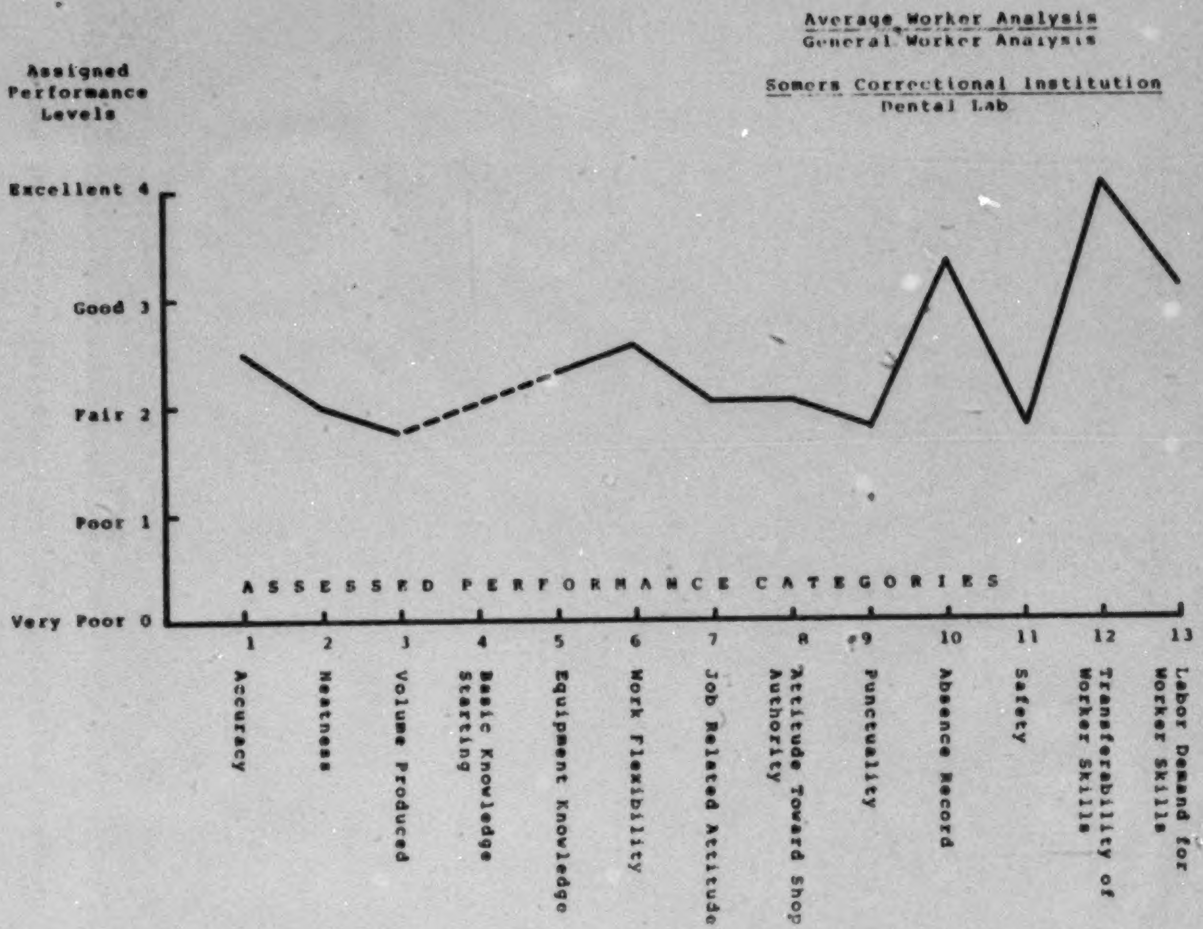
Average Worker Analysis
General Worker Analysis
Somers Correctional Institution
Dental Lab
Assigned Performance Levels
Excellent 4
Good 3
Fair 2
Poor 1
Very Poor 0
ASSESSED PERFORMANCE CATEGORIES
1
2
3
4
5
6
7
8
9
10
11
12
13
Accuracy
Neatness
Volume Produced
Basic Knowledge Starting
Equipment Knowledge
Work Flexibility
Job Related Attitude
Attitude Toward Shop Authority
Punctuality
Absence Record
Safety
Transferability of Worker Skills
Labor Demand for Worker Skills

Figure II-12

It is important to note, however, that the bulk of these records are maintained by the central Industries office. The knowledgeability and experience of the supervisor were judged to be good to excellent. The supervisor's attitude was assessed to be excellent.

All of the equipment observed was in operational condition. The only piece of equipment in the facility which seemed to be in need of overhauling/replacement was a valve grinder, estimated to be 10-15 years old.

The lighting in this facility is fluorescent in nature and was judged to be poor to fair. Additionally, the heating and ventilation system (overall) was found to be poor. In terms of safety hazards, it was found that the welding booth was devoid of any exhaust system whatever.

### e. Furniture Industry

#### (1) Quality Control (all divisions)

A major problem involving all three divisions, although only two are directly involved, is one of quality control. While quality control efforts are more than adequate in the Cabinetmaking division, furniture which leaves this area is routed to the Finishing and Refinishing division for sanding and finishing. It is important to note that the two divisions are under different supervisors, because it is in the Finishing area that severe problems arise. First, quality control efforts in the Finishing/Refinishing division are totally inadequate, except on a minority of a few 'selected' units. The quality of the work in the Finishing division is not up to the quality of the work in the Cabinetmaking division, so the pieces are either decreased in value or essentially ruined. Because of the poor quality control in the Finishing area, however, these errors are not caught before the unit leaves the industry. Additionally, it is our opinion that the finishing procedures utilized in conjunction with the solid wood furniture produced (e.g. desks, bookcases, etc.) are inadequate; or at the very least, do not do justice to the quality and beauty of the manufactured raw furniture. No stains are used - and they should be - and almost all finishing consists of a primer coat and a single finish coat of varnish or shellac.

### (2) Upholstery Division - Equipment and Workplace

The tools, jigs, and fixtures used were generally in good condition, and used wherever applicable, but fastening procedures were judged to be antiquated, or at least not contemporary, in many cases (although the quality of the procedure was adequate).

Quality control efforts in this division were found to be a bit less than adequate, but there was still only a 1-4 percent rejection rate. In terms of manpower scheduling and general operations maintenance, the Upholstery division appeared to be highly unorganized.

All materials handling procedures observed were manual in nature, and material transportation distances were usually appropriate. Material/part containers used, however, were found to be occasionally inadequate.

The supervisor's experience was judged to be fair to good. His attitude toward inmate workers was found to be good, while in terms of knowledgeability, he was rated to be fair.

All equipment and machinery in the Upholstery division was found to be operational, with no new equipment required. The lighting was fluorescent, and generally was good. The heating in the facility was poor to good, as was the ventilation, and no non-equipment hazards were noted.

### (3) Finishing/Refinishing Division - Equipment and Workplace

The tools, jigs, and fixtures observed were generally in good condition, and used wherever applicable. Subassembly and fastening procedures were found to be appropriate and up-to-date, as were the fastening devices utilized. Activity and manpower assignments were generally good. Materials handling was completely manual in nature, and the transportation distances and containers were appropriate and adequate.

The experience of the supervisor in this division was judged to be fair to good. Additionally, while the supervisor's attitude was good, his knowledgeability was assessed as only fair. The basis for this assessment has been previously discussed.

With the exception of two hand belt sanders and three electric orbital sanders, all equipment and machinery was operational with safety guards in place wherever they were needed. The lighting in the facility was fluorescent, and generally very good. The heating was poor, and the ventilation system in the spray area of this division was wholly inadequate.

### (4) Cabinetmaking Division - Equipment and Workplace

Tools, jigs, and fixtures used within this division were found to be in good condition, and in widespread use. In fact, this was the most impressive aspect of this division's production effort. Jigs, fixtures, patterns, and templates were present for every piece of furniture the facility regularly produces. Unfortunately, none of the furniture is mass produced; job lot production is the only method presently being employed in this division.

Fastening devices observed were up-to-date, as were the fastening and subassembly procedures. Quality control efforts were noticeably more than adequate. Scheduling and record maintenance were found to be adequate, and manpower assignments were judged to be good, with no excessive overmanning of work tasks observed.

Materials handling procedures were all manual in nature; material transportation distances were, on the whole, appropriate. Material and part containers were also adequate. Based upon the judgement of ECON's production analyst, the Cabinetmaking supervisor's experience, knowledgeability and attitude were all found to be excellent.

All of the equipment and machinery reviewed was found to be in operational condition. The lighting in the facility was fluorescent in nature and very good in adequacy. The heating, however, was poor in some areas, but the ventilation was generally good and no non-equipment hazards were observed.

### (5) Worker/Labor Analysis

One general worker analysis survey was completed for each division in the Furniture industry. Points of interest include low mean assessments for all three divisions in terms of the basic knowledge of their workers when they began work in the industry. This, of course, was not completely unexpected. In terms of work quality and job-related attitudes, it was found that employees of the Cabinetmaking division possessed the highest mean assessment. A complete comparative profile for this analysis over all three divisions is presented in Figure II-13. Figure II-14 presents the results of the general worker analysis for the entire Furniture industry (all divisions combined).

('76-1913)

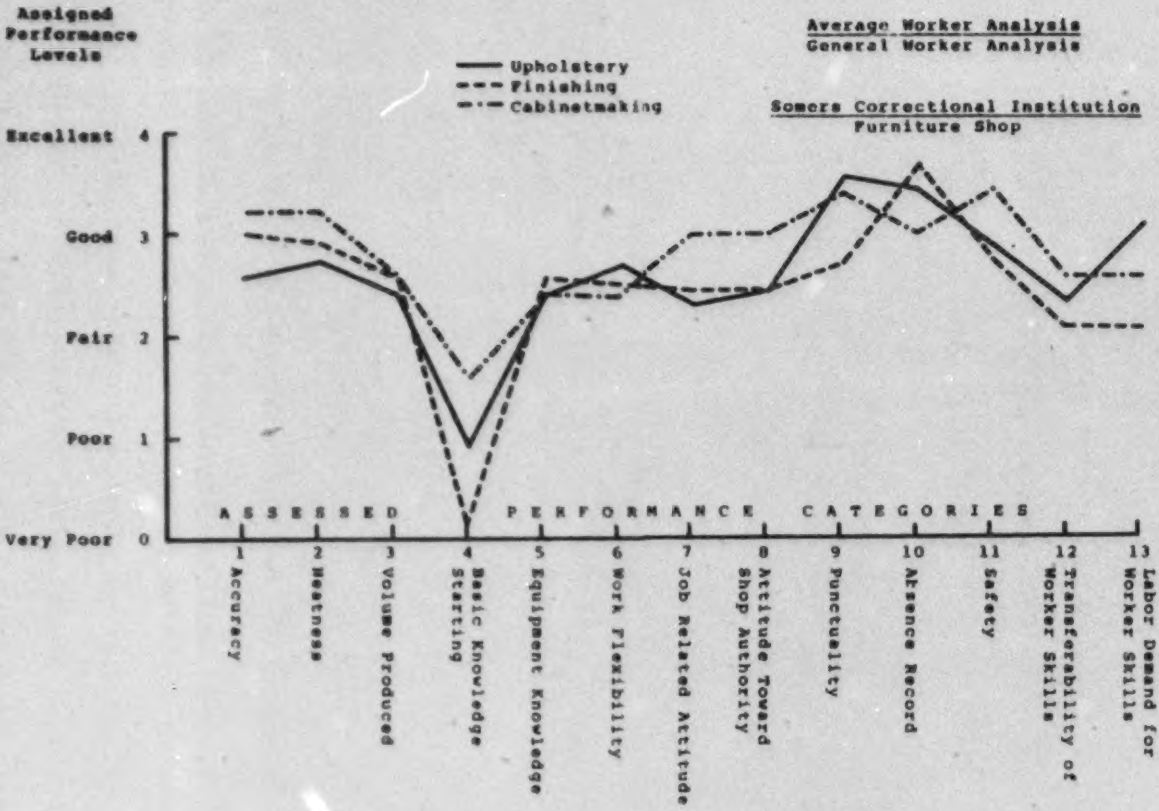

Figure II-13

('76-1994)

Average Worker Analysis
General Worker Analysis

Somers Correctional Institution
Total Furniture Industry

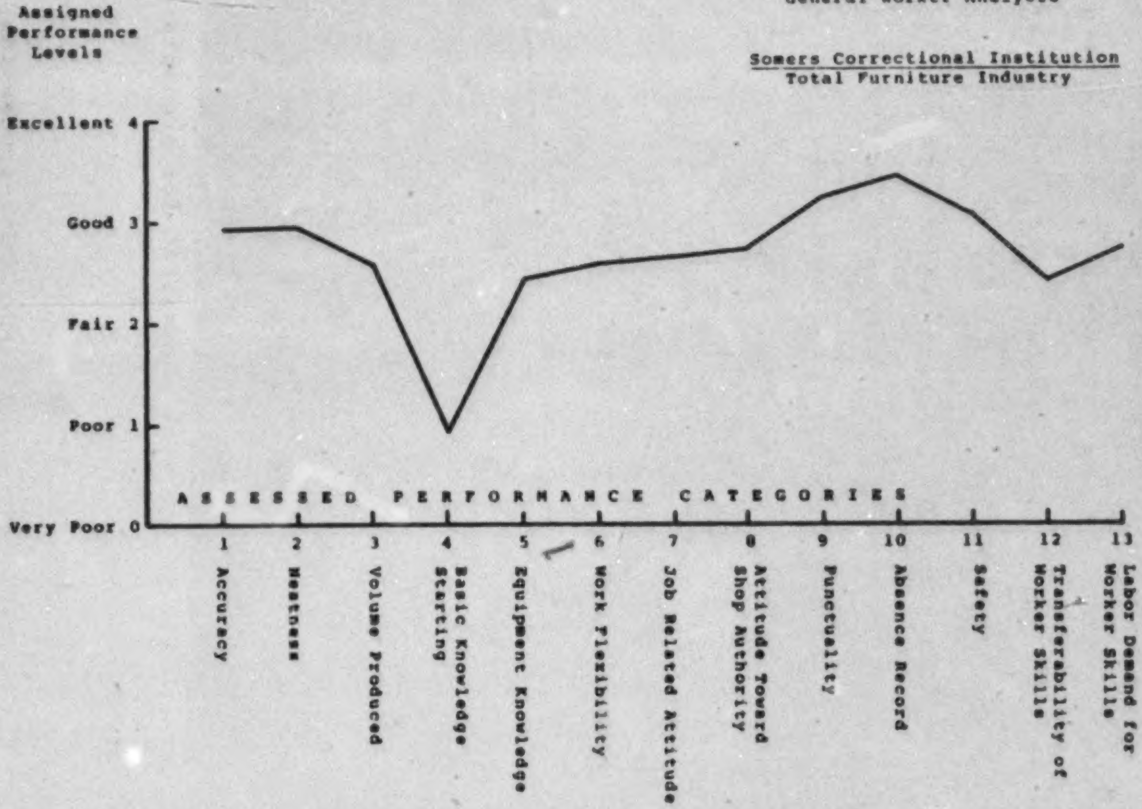

Figure II-14

### 4. Recommendations

#### a. Manpower Scheduling and Control

As a result of findings regarding worker scheduling problems reported above, the following recommendations are offered to improve scheduling and control.

1. Change the present institutional scheduling policies to disallow fragmented work periods.
2. Install and utilize (for salary purposes) a time clock system in the facility.
3. House all employees of a particular shop in a single cell block, so all may arrive and depart the facility in unison.
4. Increase the present work day to seven, or preferably, eight hours.

#### b. Marketing

In light of the low production volume created by the lack of marketing effort, we would recommend that the Director of Prison Industries at Somers initiate efforts jointly with the Director of Prison Industries for the State of Connecticut to increase the market for products from the Industry shops.

#### c. Order Processing

We recommend that the present order processing system be taken out of the hands of the centralized office (which places inmates in charge of the entire system) and be assigned to each individual supervisor (or a supervisor assistant who is not an inmate). Materials procurement would also be changed if this took place so that each supervisor could maintain a stock in inventory commensurate with the order he knew he had.

### d. Supervisor Training

With the expected increased workload, the demands on the present supervisor's skills will be great. We recommend that a two-week course in industry management practices and financial planning be conducted to thoroughly acquaint them with the goals and operational mode of the Free Venture Industries Program and to sharpen the business and shop management skills of the supervisors.

### e. Recommendations - Shop-by-Shop

General observations were made of the operation of each shop and recommendations were prepared related to the findings of the shop surveys and these observations. In the sections below, the general observations and specific recommendations are reported on a shop-by-shop basis.

#### (1) Print Shop

A number of very positive and encouraging characteristics were noted concerning the equipment, workers and shop management. Our summary judgement is that the Somers Print Shop affords excellent potential for future development within the context of ECON's Free Venture

Model of Correctional Industries. This assessment is based upon the competency and attitude of the supervisors, the quality of the work produced, the observed enthusiasm and motivation exhibited by the inmates presently working within the facility and the overall state of the present equipment. Given the acquisition of the recommended equipment, this facility should be capable of obtaining a substantially larger amount of work than is presently acquired. Our equipment recommendations include the following specific items.

1. A commercial saddle-stitcher (cost $7,000) should be purchased to allow the facility to perform large pamphlet jobs adequately (in terms of production rate and quality).
2. A 'snap-out' binder and perforator (two independent pieces of equipment) should be purchased (approximately $1,000) to allow the facility to bid on and perform carbon-insert-type tasks.
3. An automatic rotary collater should be purchased (approximate cost, $1,000) to (a) allow for bidding on large pamphlet tasks, (b) speed up present production rates in the collating area, and (c) free present workers for work in other areas of the shop, increasing the available man-hours while retaining the present number of employees.
4. A multilith machine with automatic feeder (approximate cost, $20,000) will speed printing production to levels corresponding to those an automatic rotary collater can efficiently handle.

### (2) Dental Laboratory

The dental laboratory is a strong candidate for inclusion in the Free Venture Model, given that the work demand can be substantially increased. At the present time, most of the workers would seem to be spending their time in the facility with nothing to do. If the market is expanded, and then if the recommended additions to this industry's equipment inventory are made, this industry could easily become financially self-supporting. Further, if the demand for the dental laboratory's products is increased, a need will exist in terms of increasing the production capacity of the facility, as well as allowing the facility to produce a higher quality product. For this reason, it is recommended that the equipment and tools recently requested of the Prison Industry Administration by the present Dental Laboratory supervisor be purchased/acquired. The items include an automelt unit ($575), a centrifugal casting machine and stand ($1,636), and sundry small items (approximate cost, $984).

It is also recommended, in the interest of safety, that even if no other equipment is acquired for this facility, a new vitalium burn-out furnace be purchased for the dental laboratory (approximate cost, $2,005), and the present furnace be permanently remcved.

### (3) Optical Laboratory

Of all the industries assessed at the Somers facility, this industry has the greatest potential for productivity under the Free Venture Model. This assertion is based upon the following factors:

- The knowledgeability, enthusiasm, and attitude of the supervisor.

- The present excellent state of the existing equipment.

- The proven competencies and attitudes of the present labor force.

- The potential for financial return (profit).

- The continuing state needs for the products generated by this industry.

In order to allow the facility to perform a greater diversity of work, as well as handle a greater work load, this industry should acquire the following tools and equipment:

- 1-2 more edgers (cost, $4,500 each)

- 2-4 cylinder machines (cost, $2,000-$3,000 each)

- 280 laps, and 90 sphere tools (cost, $500-$700)

- A larger hardening unit (cost, $5,000)

The total cost of this additional equipment would be approximately $25,000. Because of its potential for operating profitably as a Free Venture Industry, it is strongly recommended that this industry's market be broadened.

### (4) Small Engine Repair Shop

At the present time, this industry is almost completely oriented toward vocational training, as opposed to large-scale service. If this prison industry is to participate within the Free Venture enterprise, therefore, fundamental changes in its present structure must take place.

In order to become financially self-supporting, basic changes must be made in the present facility and equipment inventory. Due to the problems initiated when workers being trained utilize the same equipment as workers who are performing production/service work, it is recommended that a complete set of tools and equipment must be purchased for a full service area in Small Engine Repair. This equipment would include:

- 1 or 2 small engine lathes (cost $2,000)
- 1 valve grinder (cost, $1,000)
- a set of precision measuring instruments: micrometer(s), inside and outside calipers, v-blocks, surface plate (costs, $4,000)
- small steam jenny (cost, $1,000)
- tap and die set, drill bits, arbor press (cost, $600).

Further, to improve the safety and working conditions in the present shop, we recommend the following changes:

- a specialized welding exhaust system should be installed over the existing welding booth,
- the present lighting system should be augmented with additional lighting fixtures ($1,000-$1,500 in total).

These purchases would allow fully trained workers to use and maintain their own set of tools continually without spending large portions of time fixing equipment that a trainee ruined or destroyed in the learning process.

Further, the present facility is excellent (in terms of size) for a training facility, but much too small to house both a training and service area. Additionally, a 'shift' concept (trainees in the facility in the morning, service workers in the facility during the afternoon) would be unacceptable due to previously cited difficulty with tools. Thus we recommend that the facility next to the existing Small Engine Repair shop, which presently houses a computer programming training laboratory, be transformed into a separate Small Engine Repair service area; the existing facility should be utilized only for training purposes. Additional equipment for training purposes would be required. The minimum additional equipment requirements include:

- a "Ken Cook system" (cost, $3,000)
- 2 snowmobile engines (cost $300 to $350, total)
- 2 rotary (wankel) engines (cost, $300 to $350, total)
- 2 motorcycle engines (cost $300 to $350, total)
- 2 snowblowers (cost, $800-$1,000, total).

If this recommendation is followed by the Prison Industry Administration, a supervisory problem will result related to maintaining two shops with one supervisor. Given that the present supervisor seems to be more interested in training than service and seems to be more competent in that area, and given that the two facilities will be somewhat separate in orientation, we recommend that a new supervisor, familiar with service work in the private sector, be hired as director of the service portion of the Small Engine Repair industry.

Even if all three of these recommendations are adopted, the service area will still face extreme problems related to a depressed market. To facilitate increasing the present volume of work, two recommendations are proposed. First, the individual hired as service supervisor, the Director of Prison Industries for the prison, and the Director of Prison Industries for the state must initiate efforts to bring more state work into the industry's service area. Second, the individual hired as service supervisor, the Director of Prison Industries for the prison, and the Director of Prison Industries for the state should explore the possibilities (and legal ramifications) of qualifying the service component of the industry as local service representatives of Briggs & Stratton, Kawasaki, Mercury, and other companies producing products using small two- and four-stroke internal combustion engines.

If this effort can be accomplished, a tremendous volume of work could be brought into this industry; its potential for financial self-sufficiency under these circumstances would be great. The cost of qualifying would be relatively minor, and an outside drop-off/pick-up shop could be established where inmates paroled from this industry could obtain jobs upon their release.

### (5) Furniture Industries

This industry has potential for inclusion in the Free Venture model only if the more serious problems in the various divisions can be solved. Specifically, the quality control and administration issue in the Finishing and Refinishing division must be solved; the present upholstery designs being implemented in the Upholstery division must be upgraded and modernized. In these efforts, we would like to indicate that the present Cabinetmaking supervisor is an extremely competent and knowledgeable individual, and should be seriously considered and perhaps consulted in any planned changes or modifications of the present Furniture industry structure.

To improve the appeal of the upholstered products in terms of their design, especially as related to fastening procedures and materials, it is recommended that the supervisor of the Upholstery division participate in some in-service program(s) within a civilian upholstery industry or agency. Further, it is recommended that the Director of Prison Industries for the state as well as the Director of Industries for Somers must provide assistance to the present Upholstery supervisor in reorganizing his organization and manpower assignment procedures.

In addition, the ventilation system in the Refinishing spray area should be expanded (approximate cost, $2,000). In this same general area (spray area) many unnecessary non-equipment hazards were noted in the form of exposed flammables in non-safety containers spread around the floor of the area. Therefore, metal safety containers should be installed in the spray area and flammable materials should be stored in these cabinets whenever they are not in use.

It was noted that many of the present refinishing operations are slowed due to hand sanding of intricate parts, as well as due to problems sanding larger flat surfaces. In order to speed these production procedures and increase the capacity of the division, it is recommended that one sandblaster ($400 to $500) and one hydraulic belt sander (larger capacity, cost, $1,000-$1,500) should be purchased for use in the Finishing/Refinishing division.

In addition, a hydraulic press (cost, $20,000-$22,000) is recommended to make possible the use of veneered finished surfaces and laminations on various pieces such as desks and cabinets.

In the Cabinetmaking division, with the jigs and fixtures already in existence, and with the willingness of the supervisor to attempt a production change if given some aid, 50-75 percent of the products presently produced by this division could be easily produced in a production line fashion. It is therefore recommended that the Director of Prison Industries for the state and for Somers seek and secure consultative aid for the supervisor of the Cabinetmaking division, in an effort to facilitate mass production methods in this division. It is estimated that if the Industries Administration helps this supervisor convert to production line processes and mass production methods, the production capacity of this area would at least double and the division's ability to meet the now-too-great demand for its products would be greatly increased.

In order to increase the capacity of this division in terms of its production rate, a small amount of additional equipment is required. Specifically, one electric glue gun (cost, $150-$250), one panel saw (cost, $700), and 50-100 bar and pipe clamps (cost, $500-$1,500) should be acquired for use in the Cabinetmaking division.

### (6) Typewriter Repair Shop

While a formal production analysis was not carried out in the Typewriter Repair Shop, informal conversations were held with the shop supervisor. As a result of these discussions, we recommend the additional equipment to be acquired for his shop to improve efficiency would include:

- agitator for washtowels (cost, $700)
- 20 industrial bench lights (cost, $1,400).

In addition, the need for one more supervisor for this shop was identified.

## Summary

The two tables which follow summarize the recommendations made by us in the preceding discussion. All costs are shown on a shop-by-shop basis, and costs are summarized for all shops. Equipment costs are shown in Table II-44 and recommended additional labor costs are in Table II-45.

## Table II-44

## Recommended Equipment Investments - Existing Somers Industry Shops

| | |
|---|---|
| PRINT SHOP | $29,000-29,500 |
| Commercial saddle-stitcher | $ 7,000 |
| Snap-out binder, and perforator | 1,000 |
| Automatic rotary collater | 1,000-1,500 |
| Multilith machine with automatic feeder | 20,000 |
| FURNITURE SHOP | $24,750-28,450 |
| Finishing-Refinishing: | |
| Sandblaster | $ 400- 500 |
| Hydraulic belt sander | 1,000-1,500 |
| Hydraulic press | 20,000-22,000 |
| Spray ventilation cabinet | 2,000 |
| Cabinetmaking: | |
| Electric glue gun | 150- 250 |
| Panel saw | 700 |
| 500-100 bar and pipe clamps $10-$15 ea. | 500- 1,500 |
| OPTICAL SHOP | $22,500-26,700 |
| 2 Edgers | $ 9,000 |
| 4 cylinder machines at $2,000-$3,000 ea. | 8,000-12,000 |
| 280 laps, and 90 sphere tools | 500- 700 |
| Large hardening unit | 5,000 |
| TYPEWRITER REPAIR | $ 2,100 |
| Agitator for wash tanks | $ 700 |
| 20 industrial bench lights | 1,400 |

## Table II-44
## (Continued)

| | |
|---|---|
| SMALL ENGINE REPAIR | $ 14,300-15,150 |
| Ken Cook system | $ 3,000 |
| 2 snowmobile engines | 300- 350 |
| 2 rotary (Wankel) engines | 300- 350 |
| 2 motorcyle engines | 300- 350 |
| 2 snowblowers | 800-1,000 |
| 1-2 small engine lathes | 2,000 |
| 1 valve grinder | 1,000 |
| Lighting System | 1,000- 1,500 |
| Set of precision measuring instruments: micrometer(s), inside & outside calipers, v-blocks, surface plate. | 4,000 |
| Small steam jenny | 1,000 |
| Tap & die set, drill bits, arbor press | 600 |
| DENTAL SHOP | $ 5,200 |
| Automelt unit | $ 575 |
| Vitalium burn-out furnace | 2,005 |
| Centrifugal casting machine and stand | 1,636 |
| Sundry small items | 984 |
| TOTAL INDIVIDUAL SHOPS | 97,850-107,100 |
| Added Equipment Across Shops | |
| 8 time recorders @ $185 = | 1,480-1,500 |
| 10 time card racks @ $ 25 = and time cards | 250- 300 |
| | $ 1,730-1,800 |

TOTAL EQUIPMENTS COSTS - $99,580-108,900

## Table II-45

## RECOMMENDED ADDITION LABOR COSTS - EXISTING SOMERS INDUSTRY SHOPS

| | | |
|---|---|---|
| PRINT SHOP | - | NONE DURING THE FIRST YEAR OF IMPLEMENTATION |
| OPTICAL SHOP | | |
| DENTAL SHOP | | |
| FURNITURE SHOP | | |
| CABINETMAKING & REFINISHING | - | 1 CONSULTANT AT $2,000 TO ASSIST IN THE PARTIAL CONVERSION OF SHOP TO MASS PRODUCTION |
| REFINISHING | - | NONE |
| UPHOLSTERY | - | TRAINING COURSE $2,000 |
| TYPEWRITER REPAIR | - | 1 SUPERVISOR AT $14,000 INCLUDING BENEFITS PACKAGE |
| SMALL ENGINE REPAIR SHOP (BUT ONLY IF ACCESS TO OPEN MARKET CAN BE ARRANGED VIA SERVICE FRANCHISE WITH PRIVATE INDUSTRY) | - | 1 SUPERVISOR AT $14,000 INCLUDING BENEFITS PACKAGE |

TOTAL LABOR COSTS = $ 32,000

TWO WEEK TRAINING PROGRAM FOR INDUSTRY MANAGEMENT AND SHOP SUPERVISORS IN FINANCIAL PLANNING AND INDUSTRIAL MANAGEMENT - $12,000

TOTAL LABOR COSTS = $ 44,000

## D. Analysis of Potential Shop Profitability

### 1. Introduction

The purpose of this analysis is to examine the economic viability of operating several of the existing prison industry shops in conformity with the Free Venture concept. The following are some of the economic aspects of the Free Venture concept which are directly related to the production operation of the shop and are considered in this section in some detail:

- Profit-making business operation
- Productivity standards comparable to that of the outside world
- Wages for workers based upon output.

In order to determine whether an existing shop is a potential candidate for Free Venture operation, the following questions must be resolved:

1. What is the maximum level of production that can be attained if the existing machinery and equipment are operated at full capacity (i.e., 7 hours a day, 5 days a week, 50 weeks a year)?
2. If the existing equipment and machinery are old and/or outmoded, what new equipment and machinery are needed to boost the production level to match the productivity standard of private industry; and is this capital in-

vestment economically justified in terms of the added value of production that might result from it?

3. How large is the potential market for the product?
4. If the market demand is much higher than the production capacity, the situation is encouraging. But if the production capacity of the shop is higher than the market demand (as is the case in the optical lab), can this excess capacity be applied toward the production of other, analogous products that have a potential market?
5. How many staff members and workers should be employed in order to run the shop at full capacity, and what should be a reasonable mix of backgrounds and skill levels of the workers?
6. Given the backgrounds, skill levels and length of sentences of inmates, is it realistic to assume that the necessary labor force can be made available from among the inmate population (using a proper screening procedure) so that the shop can start running at its full capacity within a reasonable time?

7. How long a time does an inexperienced worker train in the shop before becoming skilled and fully productive? Further, on what basis should workers be classified into various skill levels?
8. What are reasonable annual income levels associated with the various skill levels?
9. What are the various costs associated with industry, viz., raw material, shop overhead, central office overhead, labor, marketing, etc.? What items should be included in the shop overhead and the central office overhead?
10. What is a reasonable net profit margin as compared to that of similar industries in the outside world?
11. What should be the pricing policy for products in order to meet the expenses and guarantee the net profit margin?
12. Is that pricing policy competitive with the open market prices of similar products?

An attempt has been made to resolve these questions in the ensuing profitability analysis. Out of the existing industries at Somers, there are five shops that appear to be potential candidates for the Free Venture mode of operation. They are: Print Shop, Optical Lab, Dental Lab, Typewriter Repair Shop and Furniture Shops. It should be kept in mind that it is feasible to undertake new ventures at Somers. Several candidates for new industries are discussed in the next chapter, and are excluded from the present discussion.

Another question that arises in this context is the salary structure of the staff members in the Free Venture shops. With a sharp increase in the level of production, it can be expected that the workload of the staff members will increase accordingly, as will the expectation for a commensurate increase in income. However, since the staff members are civil service employees, their salaries can only be reviewed and readjusted at the departmental level in accordance with prescribed procedures. Hence, they are excluded from this study.

### 2. Inadequacies in Present Accounting System

In order to perform a profitability analysis, it is necessary to gather data on the various capital outlays, expenditures incurred, inventory on hand, revenues earned, accounts receivable, accounts payable, etc. In the course of this analysis, attempts have been made to collect these data. However, it has been observed that the data available in the Department of Correction Annual Report on Correctional Industries for the year 1974-75 and the procedures followed in the existing accounting system suffer from two kinds of inadequacies:

1. Unconventional accounting procedures are followed that do not generate meaningful data, and
2. Inaccuracies appear in the computation of accounting data.

As an example of unconventional accounting procedures, no cost accounting system is operative within Correctional Industries; hence, no useful information is available for cost estimates, job order profits and pricing rationale. Moreover, no comprehensive physical inventories have recently been taken[12]. Revenue is reported according to the accrual method of accounting, while expenditure is recorded according to the cash method of accounting. Such examples can be multiplied. However, the point is made that the existing accounting procedure is non-functional.

As examples of inaccuracies in accounting data, the fixed assets are not accounted for correctly, the depreciation expenses are recorded inaccurately, the year-end sales and purchase cut-offs are not entered properly, and the net profit figures shown against various shops in the annual report are misleading because they do not include the central office overhead.

The combined effect of the two areas of inadequacy is to make some of the available data rather confusing. For example, the profit/loss statement in the annual report indicates that for the Typewriter Repair Shop, net sales are $3,784.26, the cost of sales is $16,059.18, and the gross "profit" is computed as $19,843.44, out of which the total operating expenses are reported as $15,051.66, and the net "loss" is computed as $4,791.78. It is difficult to figure out what this means. Moreover, the system of accounting sometimes leads to wild variations in the net profit/loss statements from year to year. For example, the Furniture Shop at Somers, in spite of having a relatively steady sales volume for the years 1972-73, 1973-74 and 1974-75, shows a profit of $49,000 in 1972-73, a profit of $61,000 in 1973-74 and a loss of $57,000 in 1974-75. The cause of these drastic variations can be traced to the fact that the cost of sales for the three years has been reported as $28K, $59K, $161K respectively--a disturbing variation. If the implication is that new machinery and equipment were purchased in 1974-75 (which is an assumption at this stage), then it is incorrect to label that as a cost item. Purchase of new equipment is a capital investment for which the associated cost is only the depreciation of the equipment.

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[12] At this writing, a plant inventory is in process.

A similar situation arises with respect to the Print Shop at Cheshire. Although the sales volume has been more or less steady for the years 1973-74 and 1974-75, the cost of sales for these two years has been reported as $16K and $76K respectively, leading to a net profit of $47K for 1973-74, and a net loss of $26K for 1974-75.

Such examples justify a skeptical view of the reported financial data in the Correctional Industries Annual Report. As a result, the ensuing financial analysis has been based as far as possible on independent data gathered through individual interviews at the individual shop level.

### 3. Concept of Overhead and Commercial Expenses

In that the existing accounting system is inadequate, this profitability analysis has been based on independent findings as far as possible. It is only in the calculation of shop overhead that some of the basic data have been collected from the Department of Correction Annual Report on Correctional Industries (1974-75). However, it should be made clear that these data have been reorganized in a manner which conforms to the standard method of overhead calculation practiced by the private sector. This approach is different from procedures used in presenting the operating expenses in the Department of Correction Annual Report. As such, the profit/loss figures on the various shops as presented in the Annual Report for the years 1972-73, 1973-74 and 1974-75 are significantly different from the profit/loss figures for the same years presented later in this chapter. The difference in these approaches to compute the overhead will now be discussed.

## Overhead Computation

The term "overhead" includes all manufacturing expenses not directly associated with raw material and labor. In the context of the prison industry setting at Somers, the overhead of a shop should include three distinct items: the expenses that are directly associated with the shop operation excluding raw material and labor; the expenses incurred in the operation of the associated warehouse; and that portion of the administrative expenses of the central office that is attributable to the management of the particular shop operation. The following list shows typical items that enter the overhead calculation.

1. Direct shop overhead:
   - staff payroll (shop superintendent, etc.)
   - staff fringe benefits
   - fees for services purchased
   - freight expenses
   - factory supplies
   - small tools
   - utilities (heat, electricity, etc.) consumed in the shop
   - repair and maintenance
   - dues, subscriptions, etc.
   - miscellaneous factory expenses

2. Warehouse expenses:

- staff payroll
- staff fringe benefits
- freight expenses
- supply expenses
- utilities consumed in the warehouse
- repair and maintenance
- depreciation
- miscellaneous warehouse expenses

3. Central office overhead

- staff payroll (central office administrator)
- staff fringe benefits
- dues and subscriptions
- travel expenses
- postage
- utilities consumed in the central office
- repair and maintenance
- supply expenses
- automobile expenses
- depreciation
- miscellaneous expenses

It should be noted that although the warehouse expenses and the central office administrative expenses have been entered in the overall profit/loss statement of the entire prison industry operation shown in the Annual Report;

these expenses are not distributed over the individual shops. Thus, the net profits of the individual shops, as reflected in the Annual Report, appear to be much greater than they actually are. Secondly, utilities (electricity, heat, etc.) have not been entered as an expense item in the Report. At the present time, Correctional Industries have not been asked to pay the cost of fuel and electricity. However, this question is currently being re-examined by the Department of Correction. In order to be conservative, the utility costs have been entered in this profitability analysis as an expense item. It should be noted that the cost of space utilized by the prison industries has not been included in the present profitability analysis. In private business, space is either a lease expenditure or a capital investment depreciable over a certain period of time (40 years is a typical period used by many industries that own their own buildings). It does not, however, seem appropriate at this point to suggest that prison industries pay for the space they utilize, except for fuel and electricity. Unless there is such a demand for the prison space in the open market that private industry would use the space for a certain rental fee, the concept of "opportunity cost" suggests that the economic value of that space must be assumed as zero. If, at some future date, private industry indeed makes use of that space under a rental agreement, the situation will change; and in order to ensure fair competition, prison industry will have to pay for its space at a similar rate.

In summary then, to determine the profitability of a shop, three expense items, viz., utilities, warehouse expenses and a portion of the central office administrative expenses that is related to the particular shop in question, must be included in the overhead calculation, over and above the direct shop overhead as entered in the Department of Correction Annual Report on Correctional Industries. The concept of how these additional expenses ought to be divided among the various shops will now be discussed.

## Distribution of Additional Expenses Among Prison Industry Shops

There does not seem to be a unique way to distribute the three categories of overhead expenses on a shop-by-shop basis unless detailed records are kept on the extent of each shop's use of utilities, central office management efforts and warehouse facilities. In the absence of such elaborate data, two different approaches can be taken to arrive at a reasonable allocation of overhead to each of the industrial shops. One is to distribute expenses proportional to the respective shop footage measurements; the other is to distribute these expenses proportional to the respective shop revenues earned. Each approach has been used in the manner discussed below:

1. Utilities: For the fiscal year 1974-75 at Somers,[13] the cost of utility services was $146,478; that of fuel was $295,401. Thus, for heat and electricity, the total annual expenses at Somers are approximately $440,000. It is our judgment that the shopwise distribution of these expenses should more properly be computed in proportion to their respective volume measurements than in proportion to their revenues. Accordingly, the utilities for Print Shop, Optical Lab, Dental Lab, Typewriter Repair Shop and Furniture Shop are costed as $25,000, $12,000, $12,000, $9,000 and $42,000 respectively. As mentioned earlier, for a more exact analysis it is necessary to measure the annual consumption of heat and electricity per individual shop. In the absence of this detailed data, a volume-wise distribution appears to be a reasonalbe basis for developing a preliminary estimate.
2. Warehouse Expenses: The Department of Correction central office records indicate that the

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[13] Data supplies by Mr. William Zinchuk, Chief Fiscal Officer in his letter to Mr. Edward Nobel, dated April 19, 1976.

warehouse expenditure for the fiscal year 1974-75 is $16,602, distributed among Clothing, Print, Furniture, Laundry, Typewriter, Print-Cheshire, Furniture-Cheshire, Data Processing and Clothing-Cheshire as $6,491; $1,544; $6,624; $581; $863; $249; $183; $50 and $17 respectively. These figures have been used in this analysis.

3. Central Office Overhead: The expenses incurred by running the central office of prison industry administration during fiscal years 1972-73, 1973-74 and 1974-75 are reported in the Department of Correction Annual Report on Correctional Industries as $87,795, $82,055 and $128,670 respectively. Out of the latest figure of $128,670, it is estimated that approximately $86,000 is associated with prison industries at Somers. This estimate is based on the findings illustrated in Table II-46. This amount must be distributed among the various shops according to a consistent scheme. Since the administrative expenses are a reflection of the amount of shop activity to be managed, it may be argued that these expenses should be divided among the

## Table II-46 Central Office Overhead Attributed to Prison Industry at Somers

| | |
|---|---|
| Staff Payroll and Fringe Benefits | $79,681 |
| Dues and Subscriptions | 291 |
| Travel Expenses | 2,040 |
| Supply Expenses | 1,763 |
| Miscellaneous | 994 |
| Equipment Repair | 475 |
| Postage | 664 |
| Depreciation | 157 |
| TOTAL | $86,065 |

various shops in proportion to their respective revenues. This, of course, is based on the assumption that the total revenue earned in a shop is a measure of the shop activity to be managed. Since the projected revenues of the Free Venture candidate shops (as will be discussed later) are significantly greater than the revenues earned in other activities (e.g., Laundry and Clothing), it can be expected that, for all practical purposes, the entire central office overhead of $86,000 will have to be borne by the Free Venture shops. The distribution of central office overhead among the Print Shop, Optical Lab, Dental Lab, Typewriter Repair Shop and Furniture Shop, proportional to the projected revenues, appears to be $22,000, $10,000, $10,000, $8,000 and $36,000, respectively.

4. Commercial Expenses: Since marketing is expected to be a significant business activity in the Free Venture shops, it is likely that marketing expenses will be a substantial portion of the commercial expenses. As will be illustrated later, the projected revenues of the Free Venture shops are an order of magnitude greater than the current revenues earned

in these shops. The sales market survey indicates that such large projected revenues are feasible because large potential state-use markets exist. One of the standard ways that marketing is undertaken in the private business sector is on a commission basis. Initial inquiries made by ECON indicate that it will be feasible to contract out the marketing effort on the basis of a 12 percent commission on the increment in revenue realized over the 1975 figures. Accordingly, the marketing expenses for the Print Shop, Optical Lab, Dental Lab, Typewriter Repair Shop and Furniture Repair operation are estimated as approximately $25,000, $12,000, $12,000, $14,000 and $81,000 respectively.

The above discussions pertain to the additional expenses (both overhead and commercial expenses) that should be included with the overhead expenses already indicated in the Department of Correction Annual Report on Correctional Industries. The complete picture is illustrated in Table II-47. It should be emphasized that these figures are only approximate, as they include probable future projections. However, they also indicate a feasible operational mode for the five candidate shops for the Free Venture model.

Table II-47 Distribution of Overhead and Commercial Expenditure Among Various Shops, (in hundreds of dollars--represent negligible expenditures)

| Account Description | Dental Lab | Optical Lab | Print Shop | Typewriter | Furniture |
|---|---|---|---|---|---|
| Shop Overhead (for FY74-75) | | | | | |
| Staff Payroll | 11.9 | 10.4 | 18.6 | 11.1 | 55.3 |
| Staff Fringe Benefits | 2.3 | 2.0 | 3.7 | 2.2 | 11.0 |
| Freight Expenses | 1.3 | 0.4 | 0.6 | - | 3.3 |
| Towel Service | - | - | 2.8 | - | - |
| Factory Supplies | 3 | 7.3 | 5 | 3.7 | 31 |
| Small Tools | - | - | - | - | - |
| Misc. Factory Expense | 0.2 | 0.7 | 1 | 0.5 | 2 |
| Repair Materials, General | 0.7 | 9.8 | 1.5 | - | 5.4 |
| Equipment Repair & Maint. | 1.7 | - | 20.4 | - | 33 |
| Dues, Subscriptions | 0.2 | 1.5 | 0.2 | 1.6 | 3 |
| Depreciation | 4.2 | 0.9 | 61.6 | 1.3 | 32.4 |
| Utilities | 120 | 120 | 250 | 90 | 420 |
| Warehouse (for FY74-75) | - | - | 15.4 | 8.6 | 66.2 |
| Annual Sale (for FY74-75) | 16 | 10 | 865 | 37 | 1959 |
| Central Office Overhead (projected) | 100 | 100 | 220 | 80 | 360 |
| Marketing Expenses (projected) | 120 | 120 | 250 | 140 | 810 |
| Projected Sale 76-77 | 1200 | 1190 | 3000 | 1000 | 7400 |
| Projected Sale 77-78 | 1500 | 1400 | 4000 | 1200 | 7400 |

### 4. Inherent Assumptions in the Free Venture Mode of Operation

Earlier we presented a list of questions that need to be resolved to ascertain the economic viability of existing shops operating in the Free Venture mode. Some of these questions (e.g., what is the maximum level of potential productivity) can only be answered in the context of the particular shop in question. But some other questions (e.g., what should be the reasonable income levels of workers) are of a more general nature and should be dealt with uniformly for all the shops in question. Answers to some of these general questions cannot be derived analytically; thus certain subjective assumptions must be made. These are discussed below.

1. Working hours: It is assumed that within the operational constraints of a correctional institution it is possible for inmates to work seven hours a day, five days a week, fifty weeks a year. The two remaining weeks constitute one week of paid annual vacation, and one of paid personal leave.
2. Workers' earnings: As a starting condition, a uniform structure of potential annual income for workers in existing shops is assumed across the board. According to this structure, the workers are divided into five categories: outstanding skilled workers, average skilled

workers, semiskilled workers, nonproduction workers and trainees. It is our judgment that in any Free Venture shop operation, possibilities should exist for an outstanding skilled worker to earn, on the average, an amount which is not less than the minimum wage level. In round figures, this amount is currently $4,500 per year. Relative to this, it is assumed that possibilities should exist that the average annual incomes of an average skilled worker, a semiskilled worker and a nonproduction worker are $3,000, $2,000 and $1,500, respectively. It is suggested that trainees be paid a dollar a day, while training for a specific job.

The above figures serve as indicators of target income levels for inmate workers in Free Venture shops during the first year of operations. Many details can be developed around them. Each income figure can be replaced by a range, so that the transition from one skill level to another can be brought about in a smooth fashion. Such details are omitted from this analysis.

A question arises at this point as to whether the workers should have an hourly wage structure commensurate with the income levels indicated above, or whether their income should be realized through profit-sharing. It is recognized that there are political considerations which are raised by such a question. Minimum wages to inmates in the face of rampant unemployment in the labor market may arouse public antipathy. On the other hand, guaranteed minimum wages may absolve the prison industry of possible charges of unfair competition brought by the private sector. These political issues are irrelevant to the economic analysis of profitability. In an economic sense, profit-sharing appears to be a more cautious arrangement than the minimum wage commitment; particularly as many unforeseen factors both in and out of the prison setting can act to impair the growth of prison industry. Accordingly, the ensuing profitability analysis is based on a profit-sharing structure.

3. Reasonable Profit Margin

A profit-making business operation is a key concept in the Free Venture model. In the outside world, it would be economically unjustified to invest in a business operation if the return on investment is not more than the interest that the same amount of money can earn in the commercial marketplace. Accordingly, a prison industry that does not show a potential net profit of at least 5 percent does not have any "economic" justification. In the outside world, monopoly businesses like utilities, telephone, etc., work on an expected 20 percent pretax return on their investment. Competitive business works on a much higher return on investment. Assuming the conservative figure of 20 percent pretax return of investment, the corresponding posttax profit becomes 10 percent (assuming a 50 percent corporate tax structure).

Therefore, it is not unreasonable to expect that the net profit averaged over all the Free Venture industries should be in the neighborhood of 10 percent. This does not preclude higher profits in certain shops to compensate for lower profits in some other shops. The net profit expectation imposes two constraints on the Free Venture shops. First, the net profit of any Free Venture shop should not be less than 5 percent. Second, the net profit averaged over all the Free Venture shops should not be lower than 10 percent.

4. Pricing policy: In order to capture a market, the price of a prison-made product must be competitive with the open market price. In the initial phase, when a successful marketing operation is vital to the growth of the prison industry, it may be necessary to fix the price somewhat lower than the corresponding market price. In the ensuing analysis, wherever the existing prices are found sufficient to assure the level of payment to workers and the net profit margin discussed above, prices are left unaltered. In cases where it has been observed that the existing pricing policy is insufficient to meet the suggested labor cost and the net profit margin, a price increase has been recommended. Care has been taken to see that the new prices suggested are at least 10 percent lower than the prices of similar products in the open market.

5. Market expansion: It has been assumed that with the conservative pricing policy discussed above, it will be possible to expand the market by orders of magnitude within a few months. This is especially true for those shops for which marketing efforts have been almost nonexistent and for which the state agencies

provide a well-defined and major portion of the market. The situation is, however, more difficult for shops that already have a market, and for which there is no well-defined primary customer. For such shops, a nonzero probability exists that projected markets suggested in the ensuing analysis may take a long time to be realized. Under such circumstances, the shop will take longer than anticipated to function in the Free Venture mode. However, it is assumed for this analysis that the potential sales markets can be realized within a few months time. As indicated earlier, a 12 percent commission on the incremental sale (i.e., increase in sales volume over the 1975 figure) has been incorporated throughout in the ensuing analysis.

### 5. Potential Shop Profitability Findings and Recommendations

In this section, profitability analysis is presented for five shops at Somers: Print Shop, Optical Lab, Dental Lab, Typewriter Repair and Furniture Shop.

The primary data have been collected from interviews with supervisors and production analyses of the shops, including time and motion studies of shop operations, and various other aspects of shop production. The overhead and commercial expenses have been calculated as indicated previously in this section.

a. Print Shop

The sales revenue for the Print Shop at Somers has been approximately $86,000 for the years 1973-74 and 1974-75, as mentioned in the Correctional Industries Annual Report. Personal interviews with the Print Shop supervisor indicate that the types of jobs undertaken in shop can be categorized as: letterheads, envelopes, pad work and form work, with their respective percentages of total volume distributed as roughly 60, 5, 10 and 25 percent. The existing pricing policies for the Print Shop products are illustrated in Table II-48. The information obtained from the shop supervisor on the prices of the corresponding raw materials indicates that the cost of all raw material, including shrinkage, used toward realizing a sale volume of $86,000 is approximately $33,500, at today's prices.

A thorough production analysis of the shop indicates that with the present labor force, which consists of nine skilled workers and three semiskilled workers, it takes approximately three hours work per day to realize

## Table II-48 Product Mix and Sale Price for Print Shop

| Product Description | % of Total Workload | Sale Price (in dollars) |
|---|---|---|
| Pad & Letterhead (5,000 sheets) | 35 | $33.05 |
| Pad & Letterhead (10,000 - 15,000 sheets) | 14 | between 63.15 & 89.05 |
| Pad & Letterhead (2,000 sheets) | 7 | 15.75 |
| Pad & Letterhead (500 - 1,000 sheets) | 14 | between 8.75 & 10.50 |
| Envelope (1,000 pieces) | 1.25 | 10.80 |
| Envelope (25,000 pieces) | 1.25 | 27.00 |
| Superior Envelope (1,000 pieces) | 1.25 | 12.05 |
| Superior Envelope (25,000 pieces) | 1.25 | 30.00 |
| Formwork (1,000 - 1,500 sheets one page, both sides) | 12.5 | between 15.00 & 20.00 |
| Formwork (1,000 - 1,500 sheets, two pages, one side each | 12.5 | between 22.00 & 27.00 |

the annual sales revenue of $86,000. With the proposed addition of two skilled workers, and with the entire labor force working seven hours a day, the annual sales volume can be easily raised to $250,000, assuming that the pricing policy remains the same. With the recommended new capital investment of $30,000, this shop can be expected to produce an additional sales revenue of $150,000 per year. Thus, a target of $400,000 in annual sales for the shop appears reasonable, provided the necessary consumer market can be reached. The potential market has been estimated as much larger, but it may take some time to develop this market. Allowing for an initial build-up period of three months, a sales revenue of $300,000 could be realized in the fiscal year 1976-77. Assuming that the product mix remains the same (letterheads, envelopes, pad work and form work, constituting 60, 5, 10 and 25 percent of the workload respectively), the corresponding raw material costs will be roughly $118,000. The breakdown of various costs and revenues shows that the Print Shop can operate in the Free Venture mode with the existing prices for its products, which are between 10 and 25 percent lower than the prices of comparable products in the outside market.

b. Optical Laboratory

The Optical Laboratory has been in existence for about a year. After an initial start-up period, the shop has been in regular production mode for about six months. The volume of sales during this period has been reported as $5,419, corresponding to annual sales of approximately $11,000.

The Optical Laboratory produces eyeglasses, 5 percent of which are bifocal. On the average, it takes approximately half an hour to produce a pair of glasses, starting from the lens blanks and ending with a lens ready for insertion in the frames. At present, there are four skilled workers and six semiskilled workers in the laboratory. It is estimated that, with the present capacity, it is possible to produce 35 to 50 pairs of glasses per day, allowing for shrinkage. With the recommended addition of new equipment, and with essentially the same manpower, it would be possible to produce up to 90 pairs of glasses per day. This corresponds to an annual production of approximately 20,000 pairs. However, the potential market related to welfare clients is only 10,000 pairs of eyeglasses per year. Allowing approximately two months for initial market development, it can be expected that in fiscal year 1976-77, orders for approximately 8,500 pairs of eyeglasses can be obtained. These orders, according to the level of productivity indicated above, could be filled in approximately five months. Adding the initial start-up of two months, it appears that it should not take more than seven months during the fiscal year 1976-77 to meet the demand during that year. With extra production time available, and with workers trained in similar skills, the Optical Lab is an appropriate site for "hearing aid assembly" operation, as suggested earlier.

At present, the industry's sale price for spherical glasses is $7.68, and $9.12 for cylindrical glasses. The cost and revenue breakdown for the shop, indicates that the average price of a pair of eyeglasses must be raised to $14.00 in order to guarantee the labor charges and net profit consistent with the Free Venture concept. This suggested price is about half the price of similar items in the open market, well within the competitive range.

c. Dental Laboratory

Production figures obtained from the Department of Correction indicate that the Dental Lab at Somers has had annual sales of approximately $16,000 for each of the last three years. Interviews with the shop superintendent indicate that approximately 50 percent of the jobs done in the Dental Lab are full dentures. Next comes repair work, which constitutes 15 percent of other activities, *viz.*, rebase, stay plate, partial denture and chrome partial, each constitutes between 5 and 10 percent of the workload. An average worker can produce a full denture in approximately three hours. The same time is required for rebase work or stay plate work. A chrome partial takes approximately four hours and repair work on the average takes two hours. A typical job description consistent with all information presented above is illustrated in Table II-49. The direct material cost figures presented in Table II-49 were obtained from interviews with the shop super intendent, and include 10 percent shrinkage. It appears from the table that 1,740 hours of

Table II-49 Job Description in the Dental Laboratory

| Type of Job | # of Jobs Done in a Year | Direct Labor (hours) | Direct Material Cost (dollars) | Industry's Current Sale Price (dollars) |
|---|---|---|---|---|
| Full Denture | 300 | 900 | 1,500 | 10,500 |
| Rebase | 60 | 180 | 60 | 720 |
| Stay Plate | 60 | 180 | 50 | 720 |
| Partial Denture | 60 | 180 | 110 | 1,920 |
| Chrome Partial | 30 | 120 | 50 | 1,110 |
| Repair | 90 | 180 | 100 | 540 |
| TOTAL |  | 1,740 | 1,870 | 15,510 |

labor are needed to produce an annual sales volume of approximately $16,000. Allowing for certain idle time, labor requirements can be approximated as 2,000 hours. The present manpower in the shop consists of nine technicians--four skilled and five semiskilled. With the addition of the new equipment requested by the shop, six skilled workers, six semiskilled workers and four trainees can be effectively employed in the shop. Considering only the skilled and semiskilled workers working 35 hours a week, 50 weeks a year, the available annual manhours is 21,000--at least ten times the manhours needed to maintain the current annual business volume of $16,000. Hence, a reasonable annual sales target for the shop, when fully operational, should be at least $150,000. This figure is probably conservative, as it does not take into account the additional productivity the shop is expected to attain with the new equipment installed. During fiscal year 1976-77, allowing for an initial start-up time of two months, it is estimated that a sales volume of at least $120,000 should be realized, provided the corresponding market can be obtained.

This sales volume allows for $34,000 to be disbursed as labor cost, and generates a net profit of $22,000, as indicated later in the cost and revenue breakdown for the Dental Lab. It is expected that there should not be any major problem in developing the market because the potential market is much larger than the potential production capacity of the shop.

### d. Typewriter Repair Shop

The Correctional Industries Annual Report 1974-75 indicates that the annual sale volume of this shop has steadily decreased from $7,000 to less than $4,000 over a period of three years. This appears to be a result of poor marketing strategy rather than declining shop productivity or product demand. The present manpower consists of 15 workers--five skilled and ten semiskilled. It is our judgment that a proper mix should be eight skilled and seven semiskilled. On the average, a skilled worker can repair one electric typewriter per day, and a semiskilled worker, on the average, can be expected to repair one manual typewriter per day. Allowing for shrinkage and idle time, it is assumed that over the period of one year, a skilled worker can repair 215 electric typewriters, and a semi-skilled worker can repair the same number of manual typewriters.

The existing service charge is $30 for an electric typewriter and $20 for a manual typewriter. But, the breakdown of costs and revenues indicates that in order to provide for the labor wage rates and net profit in conformity with the Free Venture concept, it is necessary to realize an annual sale revenue of at least $120,000. This can be realized only if the repair charges are raised to $45 per electric typewriter and $30 per manual typewriter. This price is still significantly lower than the existing prices in the outside market.

It has been indicated that a potential market exists to realize an annual sale revenue of $120,000. But, assuming an initial build-up period of two months, it can be expected that sales revenue of $100,000 can be achieved in the fiscal year 1976-77.

### e. Furniture Shop

The Furniture Shop is a conglomerate of three shops: Woodwork, Finishing/Refinishing and Upholstery. These shops work together in a complementary fashion. All three shops are involved in both production of new furniture as well as repair of old furniture. The repair work consists of 50 percent of the jobs in Woodwork, 70 percent of jobs in Finishing/ Refinishing and 70 percent of jobs in Upholstery. The annual sales revenue for the entire furniture operation has been reported to be approximately $195,000 for each of the years 1973-74 and 1974-75.[14] The potential profitability of the three activities in the Furniture Shop is presented below.

Woodwork

New furniture manufacture relative to repair is most pronounced in the Woodwork Shop. The articles of new furniture typically manufactured in this shop are: rack, picnic table, book truck, carrel, credenza, executive desk, secretary desk, teacher's desk, coat tree, conference table, side table, coffee table and utility table. To manufacture a set consisting of one each of this list, raw material costs approximately $840, manhours spent is approximately 550 hours, and shop overhead and central office overhead corresponding to

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[14] Connecticut Department of Correction Annual Report on Correctional Industries, 1974-75.

550 hours of work is approximately $1,500. Thus, not taking into account the inmate labor cost and the marketing cost, the expenses become approximately $2,400. But the sale price of the above set is approximately $1,400--thus indicating a loss of $1,000. If workers are paid in accordance with the Free Venture model, the loss will be significantly higher. At the same time, it is not possible to increase the sale price of the above items because the price of similar items in the open market is approximately the same. Hence, before a Free Venture mode of operation is introduced in this shop, the following steps have to be taken:

(a) Re-examine the existing policy of purchasing raw material and determine where a lower purchase price can be obtained;

(b) Selectively choose to emphasize the production of those products that allow a sufficient markup. Examples of such products are executive desk, conference table, coffee table and utility table;

(c) Change over from job lot to mass production wherever feasible. It is believed that about 50 percent of the current production work can be shifted to a mass production scheme.

It is only after these steps are taken that a profitability analysis can be done to see if this shop becomes amenable to the Free Venture concept.

Finishing/Refinishing

One of the main handicaps of the existing Finish/Refinish Shop is in its lack of proper equipment and machinery for mass production. It is our view, and also a belief shared by the shop supervisor, that with the suggested new equipment, it will be possible to increase the production capacity to 25,000 pieces of furniture finished/refinished per year. To keep all the machinery and equipment fully occupied there will be a need for three additional skilled workers. The optimal projected manpower for the fully equipped shop seems to consist of 14 skilled workers, 15 semiskilled workers, 5 trainees and 2 nonproduction (clerical, janitorial, etc.) workers. The raw material needed for finish/refinish work varies widely depending on the piece of furniture in question. However, on the average, it is estimated that the raw material requirement, including shrinkage, is of the order of $230,000.

Upholstery

The Upholstery Shop, at present, has five skilled workers, 19 semiskileed workers and two nonproduction workers. An interview with the shop supervisor reveals that there is an excess of semiskilled workers and a dearth of skilled workers. It appears that a proper mix should be ten skilled workers and ten semiskilled workers. In order to determine the volume of production that can be realized if these workers are fully employed, it is necessary to determine the percentage distribution of the various job types undertaken by the shop. A typical mix appears to be: club chair 60 percent, two-seater sofa 15 percent, three-seater sofa 15 percent, metal swivel chair 5 percent and wooden swivel chair 5 percent. Keeping this percentage distribution unaltered and maintaining a full workload for the projected manpower, it is possible to make a total repair of the following items in one year: 850 club chairs, 235 two-seaters, 235 three-seaters, 70 metal swivels and 70 wooden swivels.

The raw material needed for this volume of production is estimated to be in the neighborhood of $66,000. A breakdown of cost and revenue indicates that in order to guarantee the labor charges and the net profit in conformity with the Free Venture concept, a total annual sales revenue of $243,000 is required. This cannot be realized with the existing pricing policy. The recommended prices for repair work are: club chair $145, two-seater $210, three-seater $275, metal swivel $18 and wooden swivel $65. These prices are significantly higher than the existing prices in the prison industry. However, they are believed to be still competitive with the open market price.

In conclusion, the analysis shows that the repair work done in the Finishing/Refinishing Shop and the Upholstery Shop can operate in the Free Venture mode. But new furniture manufacture, though qualitywise excellent, is a problem area in the economic sense, where some fundamental issues have to be resolved.

Since the repair work and new furniture manufacture are all mixed together in the three shops, it becomes impractical to introduce the Free Venture operation for the repair work alone. Hence, the Free Venture operation of the Furniture Shop has to be deferred until the three steps recommended in connection with woodwork are taken. It is estimated that it has to be deferred until January, 1977.

### 6. Cost and Revenue Breakdown

A breakdown of the various projected costs and projected revenues in conformity with the Free Venture operating mode of the five shops under study is illustrated below on a shop-by-shop basis. At the end of this section, two tables are provided. Table II-50--illustrates an overview of the historical and the projected data on annual sales, profits and consumer savings on a shop-by-shop basis. Table II-51--displays the present manpower and the projected manpower requirement for each shop under study.

#### a. Print Shop

1. At present, there are 16 workers; 9 skilled 3 semiskilled, 2 trainees and 2 nonproduction workers.
2. Net capital investment needed ≈ $30,000.
3. Projected labor: 20 workers; 11 skilled, 3 semiskilled, 4 trainees, 2 nonproduction workers.
4. New staff: None for the coming fiscal year. May be one more in the following year if the need is evident.

5. Recommended pay scale: Trainees get $1 per day. Out of the net profit (i.e., sale revenue minus material cost minus existing overhead minus marketing expenditure) 70 percent goes to the remaining workers.

6. Projected sale over the next two years: $300,000; $400,000.

7. Breakdown of first year's revenue (i.e., $300,000). A typical breakdown of the revenue is shown below:

| | |
|---|---:|
| Material cost (including shrinkage) | $118,000 |
| New equipment depreciation | 3,000 |
| Shop overhead (including utilities) | 58,000 |
| Central Office overhead | 22,000 |
| Marketing | 25,000 |
| Net profit before inmate labor charges | 74,000 |
| TOTAL | $300,000 |

Thus, 70 percent of $74,000 (i.e., $51,000) gets distributed among workers in the following fashion:

| | |
|---|---:|
| 5 best workers on the average earn $4,500 each | $22,500 |
| 6 average skilled workers on the average earn $3,000 each | 18,000 |
| 3 semiskilled workers on the average earn $2,000 each | 6,000 |

| | |
|---|---|
| 2 nonproduction workers on the average earn $1,750 each | 3,500 |
| 4 trainees earn $250 each | 1,000 |
| TOTAL | $51,000 |

8. Net profit is $23,000 which is 7.7 percent of the total revenue.

9. The sales market potential is much more than the production capacity that is required to achieve the above quoted revenues.

10. Pricing policy recommended to remain the same.

b. Dental Laboratory

1. At present, there are 9 technicians: 4 skilled and 5 semiskilled.

2. New capital investment needed ≈ $6,000

3. Projected labor: 16 workers; 6 skilled, 6 semiskilled, 4 trainees.

4. New staff: None for the next fiscal year. May be one more in the subsequent year depending on the growth.

5. Recommended pay scale: Trainees get $1 per day. Out of the net profit (i.e., sale revenue minus material cost minus overhead minus marketing expenditure), 60 percent goes to the remaining workers.

6. Projected sale in the next 2 years: $120,000 $150,000.

7. Breakdown of first year's revenue (i.e., $120,000) is shown below:

| | |
|---|---|
| Material cost (including shrinkage) | $15,000 |
| New Equipment depreciation | Negligible |
| Shop overhead (including Utilities) | 27,000 |
| Central office overhead | 10,000 |
| Marketing | 12,000 |
| Net profit before inmate labor charges | 56,000 |
| TOTAL | $120,000 |

Out of the profit of $56,000, 60 percent (i.e., $34,000) gets distributed among workers in the following fashion:

| | |
|---|---|
| 2 best skilled workers on the average earn $4,500 each | $ 9,000 |
| 4 skilled workers on the average earn $3,000 each | 12,000 |
| 6 semiskilled workers on the average earn $2,000 each | 12,000 |
| 4 trainees earn $250 each | 1,000 |
| TOTAL | $ 34,000 |

8. Net profit is $22,000 which is 18.3 percent of the total revenue.

9. Price per item can remain the same as the present price.

10. The sales market potential is much more than the production capacity that is required to achieve the above results.

c. Optical Laboratory

1. At present there are 4 skilled workers and 6 semiskilled to unskilled workers.
2. New capital investment needed ≈ $27,000.
3. Projected labor: 10 workers; 4 skilled, 2 semiskilled, 2 trainees and 2 nonproduction workers.
4. New staff: None for the coming fiscal year. May be one more if business picks up.
5. Recommended pay scale: Trainees get $1 per day. Out of the net profit (i.e., sale revenue minus material cost minus overhead minus marketing expenditure), 65 percent goes to the remaining workers.
6. Projected sale in the next 2 years: 8,500 pairs of glasses; 10,000 pairs of glasses, resulting in annual sales revenues of $119,000 and $140,000 over the next two years.
7. Average price for a pair of glasses should be increased to $14.00 per pair of glasses.
8. The full production capacity for the shop can be raised up to 20,000 pair of glasses per year, but the state-use market is limited to 10,000 pairs of glasses per year, which should not take more than seven months to produce.

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9. To augment the potential market for this shop, we recommend that the Optical Lab undertake the fitting of hearing aids, which represents an additional sales potential of $100,000 annually and a net profit margin of at least $25,000 (before inmate labor charges).

10. Breakdown of first year's (i.e., the first seven months) revenue (i.e., $119,000) is shown below:

| | |
|---|---|
| Raw material (including shrinkage) | $ 58,000 |
| New equipment depreciation | 2,000 |
| Shop overhead (including utilities) | 17,000 |
| Central office overhead | 10,000 |
| Marketing | 12,000 |
| Net profit before inmate labor charges | 20,000 |
| TOTAL | $119,000 |

Out of the profit of $20,000, 65 percent (i.e., $13,000) gets distributed among the workers in the following fashion:

| | |
|---|---|
| 1 best worker earns $2,700 | $ 2,700 |
| 3 average skilled workers on the average earn $1,800 each | 5,400 |
| 2 semiskilled workers on the average earn $1,200 each | 2,400 |
| 2 nonproduction workers together earn | 2,200 |
| 2 trainees earn $150 each | 300 |
| TOTAL | $ 13,000 |

11. Net profit is $7,000 which is 5.9 percent of the total revenue.

Note: The sales revenue of $119,000 (i.e., production of 8,500 pair of eyeglasses) can be achieved with only 60 percent employment of the recommended labor force, i.e., within approximately seven months in a year. Hence, the breakdown of first year's revenue and the earnings of workers tabulated above are based on a seven-month period. If the fitting of hearing aids can be undertaken during the next year, an added wage distribution of $13,000 may result, thereby doubling the above remuneration to inmate workers.

d. Typewriter Repair

1. At present, there are 15 workers: 5 skilled and 10 semiskilled.
2. New capital investment needed $\cong$ $2,100.
3. Projected labor: 21 workers; 8 skilled, 7 unskilled, 6 trainees.
4. New staff: Urgent need for one more supervisor with a salary ≈ $14K per year (including benefits).
5. Recommended pay scale: Trainees get $1 per day. Out of the net profit (i.e., sale revenue minus material cost minus overhead

minus marketing expenditures), 70 percent goes to the remaining workers.

6. Average price for repair has to be increased to $45.00 for overhauling an electric typewriter, and $30.00 for overhauling a manual typewriter. (The present price of $[illegible] for electric and $20.00 for manual will end up in loss.)

7. Projected sales revenues in the next 2 years: $100,000 and $120,000 are broken down as follows:

| | |
|---|---|
| Material cost | negligible |
| New equipment depreciation | negligible |
| Shop overhead (including one more supervisor and utilities) | $ 39,000 |
| Central office overhead | 8,000 |
| Marketing | 14,000 |
| Net profit before inmate labor charges | 59,000 |
| TOTAL | $120,000 |

8. Out of the profit of $59,000, 70 percent (i.e., $41,000) gets distributed among workers according to the following scheme:

| | |
|---|---|
| 1 best worker earns $4,500 | $ 4,500 |
| 7 average skilled workers on the average earn $3,000 each | 21,000 |
| 7 semiskilled workers on the average earn $2,000 each | 14,000 |
| 6 trainees earn $250 each | 1,500 |
| TOTAL | $ 41,000 |

9. Net profit is $18,000 which is 15 percent of the total revenue.

10. Sales market is larger than the production capacity.

### e. Furniture Shop

1. Present manpower in the three shops: Woodwork - 5 skilled, 6 semiskilled, 2 trainees; Finishing/Refinishing - 11 skilled, 17 semiskilled, 2 nonproduction; Upholstery - 5 skilled, 19 semiskilled, 2 trainees.

2. Projected manpower in the three shops: Woodwork - 8 skilled, 8 semiskilled, 4 trainees; Finishing/Refinishing - 14 skilled, 15 semiskilled, 5 trainees, 2 nonproduction; Upholstery - 10 skilled, 10 semiskilled, 6 trainees.

3. New staff: None for the coming fiscal year.

4. New capital investment needed:
Woodwork - $2,500 (glue gun, panel saw and bar clamps)
Finishing/Refinishing - one sandblaster, one enclosed, self-contained stripping unit (vapor operated), one ventilator, one hydraulic surfacer, one hydraulic press (altogether approximately $24,000);
Upholstery - none.

5. Recommended Finishing/Refinishing charge per article of furniture is $20.00 on the average.

6. Projected sales and profit of repair work done in Finishing/Refinishing:

| | |
|---|---|
| Raw material (including shrinkage) | $230,000 |
| New equipment depreciation | 2,400 |
| Shop overhead (including utilities) | 42,000 |
| Central office overhead | 12,000 |
| Marketing cost | 60,000 |
| Net profit before inmate labor charges | $153,600 |
| TOTAL | $500,000 |

Out of the profit of $153,600 it is recommended that 55 percent (i.e., $85,000) be distributed among the workers according to the following scheme:

| | |
|---|---|
| 6 best workers on the average earn $4,500 each | $ 27,000 |
| 8 average skilled workers on the average earn $3,000 each | 24,000 |
| 15 semiskilled workers on the average earn $2,000 each | 30,000 |
| 2 nonproduction workers together earn | 3,500 |
| 4 trainees earn $250 each | 1,000 |
| TOTAL | $ 85,500 |

7. Net profit for Finishing/Refinishing is approximately $68,000 which is 13.6 percent of the total revenue.

8. Recommended prices for total repair done in the Upholstery Shop:

| | |
|---|---|
| Club chair | $145 |
| 2-seater sofa | 210 |
| 3-seater sofa | 275 |
| Metal swivel | 18 |
| Wood swivel | 65 |

These prices are, in general, higher than the existing prices charged by the prison industry. However, they are still competitive with the open market price.

9. Projected sales and profit of the repair work done in the Upholstery shop:

The corresponding annual revenue earned is approximately $243,000 which can be broken down as follows:

| | |
|---|---|
| Raw material (including shrinkage) | $ 66,000 |
| New equipment depreciation | nil |
| Shop overhead (including utilities) | 42,000 |
| Central office overhead | 12,000 |
| Marketing cost | 21,000 |
| Net profit before inmate labor charges | 102,000 |
| TOTAL | $243,000 |

Out of the profit of $102,000 it is recommended that 55 percent (i.e., $56,000) be distributed among workers according to the following scheme:

| | |
|---|---|
| 3 best workers on the average earn $4,500 each | $ 13,500 |
| 7 average skilled workers on the average earn $3,000 each | 21,000 |
| 10 semiskilled workers on the average earn $2,000 each | 20,000 |
| 6 trainees earn $250 each | 1,500 |
| TOTAL | $ 56,000 |

10. Net profit for Upholstery Shop is $46,000 which is 19 percent of the total revenue.

11. Cost and revenue breakdown of Woodwork Shop is not presented here because the initial profitability analysis indicates that this operation cannot work in the Free Venture mode unless some basic rearrangements are made.

Table II-50 Annual Sales, Net Profits and Consumer Savings in Thousands of Dollars (Historical and Projected)

| | Historical Data | | | | | | | | | Future Projections | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 72/73 | | | 73/74 | | | 74/75 | | | 76/77 | | | 77/78 | | |
| | Sale | Profit | Consumer Savings | Sale | Profit | Consumer Savings | Sale | Profit | Consumer Savings | Sale | Profit | Consumer Savings | Sale | Profit | Consumer Savings |
| Print Shop | 66.7 | -8.3 | 21 | 46.2 | -27.6 | 28 | 36.5 | -19.9 | 29 | 300 | 23 | 85 | 400 | 34 | 115 |
| Optical | -- | -- | -- | -- | -- | -- | 5.4 | -19.8 | 18 | 119 | 7 | 135 | 140 | 11 | 160 |
| Dental | 16.5 | -23.9 | 16 | 15.7 | -13.5 | 15 | 15.7 | -30.4 | 15 | 120 | 22 | 105 | 150 | 16 | 150 |
| Typewriter | 7 | -24.4 | 14 | 5.4 | -27.2 | 11 | 1.4 | -28.3 | 4 | 100 | 12 | 33 | 120 | 19 | 39 |
| Finish/Refinish | 146 | -28.8 | 15 | 194 | -16.3 | 20 | 135.9 | -135 | 20 | 250 | 34 | 12 | 500 | [illegible] | 25 |
| Upholstery | | | | | | | | | | 122 | 23 | | 243 | 46 | |
| Woodwork | | | | | | | | | | -- | -- | -- | -- | -- | -- |

Notes:

1. Net profit is defined as sales revenue minus material cost minus shop overhead (including utility and fuel) minus central office overhead minus marketing cost. The Annual Report (1974-1975) on Correctional Industries has published historical profit data that do not include central office overhead and utility and fuel cost. Hence, historical profit data shown in the Connecticut Department of Correction Annual Report are different from the historical profit data provided here.

2. Consumer Savings indicate the amount saved by consumers in the process of their purchasing prison industry products instead of purchasing those products in the open market at the existing open market price.

3. The profit figures for 77/78 assume that the shop overhead and the central office overhead remain the same as in 76/77. In case the overhead increases due to employment of additional staff, the profit will decrease accordingly.

4. Hyphens indicate unobtainable data.

5. A negative sign before profit figure indicates loss.

Table II-51

PRESENT AND PROJECTED MANPOWER

| | Present Manpower | | Projected Manpower | |
|---|---|---|---|---|
| Shop | Workers | Hours/Year | Workers | Hours/Year |
| Print Shop | 9S + 3SS + 2T + 2N | 12,480 | 11S + 3SS + 4T + 2N | 35,000 |
| Typewriter | 5S + 10SS | 11,700 | 8S + 7SS + 5T | 35,000 |
| Optical | 4S + 6SS | 7,800 | 4S + 2SS + 2T + 2N | 17,500 |
| Dental | 4S + 5SS | 7,020 | 6S + 6SS + 4T | 28,000 |
| Finish/Refinish | 11S + 17SS + 2N | 23,400 | 14S + 15SS + 5T + 2N | 63,000 |
| Upholstery | 5S + 19SS + 2N | 20,280 | 10S + 10SS + 6T | 45,500 |
| Woodwork | 5S + 6SS + 2N | 10,140 | 8S + 8SS + 4T | 35,000 |

S = Skilled

SS = Semiskilled

T = Trainee

N = Nonproduction worker

## III. ANALYSES OF PROPOSED NEW INDUSTRIES

### A. Introduction

The criteria for decision-making regarding the selection of new prison industry have been threefold:

- Work skill requirements match the capabilities of the inmate workers,
- The industry is a financially sound venture for correctional industries with growth potential. This implies that (a) capital investment requirements are not so high as to discourage the funding source, and (b) markets exist that allow for profit while paying inmate wages at least as high as projected for the existing industry shops and which provide for continued growth of the industry shop.
- The industry prepares inmate workers--by way of specific job experience--for jobs upon release from the institution.

The set of candidates for new industries that were identified during the study includes:

- Microfilming Service Bureau
- Solar Energy Products
- Metal Products Industry
- Musical Instrument Repair Shop
- Bakery Products
- Data Processing Service Bureau.

Of these, the Microfilming Service Bureau, Musical Instrument Repair Shop and a Data Processing Service Bureau are strongly recommended as new prison industry ventures. These ventures meet all of the selection criteria stated above. Bakery Products (and by logical extension--a Food Servicing

Industry) although showing promise with respect to the size of the state-use market (essentially, schools and institutions) and job market potential, has a daily routing and scheduling dimension that needs to be carefully explored before a definite recommendation can be made. The Solar Energy Products Industry must await economic analysis of the potential benefits from these installations (this is a study that could not be made in sufficient detail over the period of this evaluation of candidate industries). The Metal Products Industry, while attractive in many respects, requires a substantial capital investment. Due to the poor financial condition of Industries' revolving fund, we recommend that this new venture be postponed until Correctional Industries builds up its capital reserves through successful operation of the Free Venture Industries program for at least a one year period.

For the candidate industries the following information (when applicable) is provided:

- background and overview of the new venture,
- descriptions of the operations of the prison industry,
- capital and manpower requirements,
- market and profitability analysis, and
- job market outlook.

## B. Microfilming Service Bureau

### 1. Background

There is a growing need for microfilming services by Connecticut state agencies. This need is generated by an increasing backlog of records that must legally be stored (in some cases up to 25 years, or longer in the case of the state's archives). The Records Management Committee has authority over the records that are generated by the executive branch of government, and is enabled to specify the length of storage, location and the provisions for disposition of the records.

At this time, the only "official" repository for records is the Records Center which is part of the state library system. From conversations with Mr. Raymond Potter, Public Records Administrator, and Mr. Kenneth F. Rieke, Chief of Record Services for State Agencies, it was ascertained that there currently exists a backlog of approximately 15 million records at the Records Management Center. The problem of storage space is so severe that the Records Center is currently seeking an additional building for storage of the overflow. Annual additions to the Center are now approximately 2 million records, a figure limited only by the space available.

### 2. Operations of a Microfilming Service Bureau

Figure III-1 illustrates the activities, inputs and outputs of a typical microfilming service bureau. After initial processing (the elements of which are indicated in Figure III-1) the records must be prepared for microfilming. The main requirement is that all binding materials are removed. The amount of labor required for this task is solely a function of the state of the records. A suggested rule of thumb is one person preparing the records for each microfilming machine in operation.

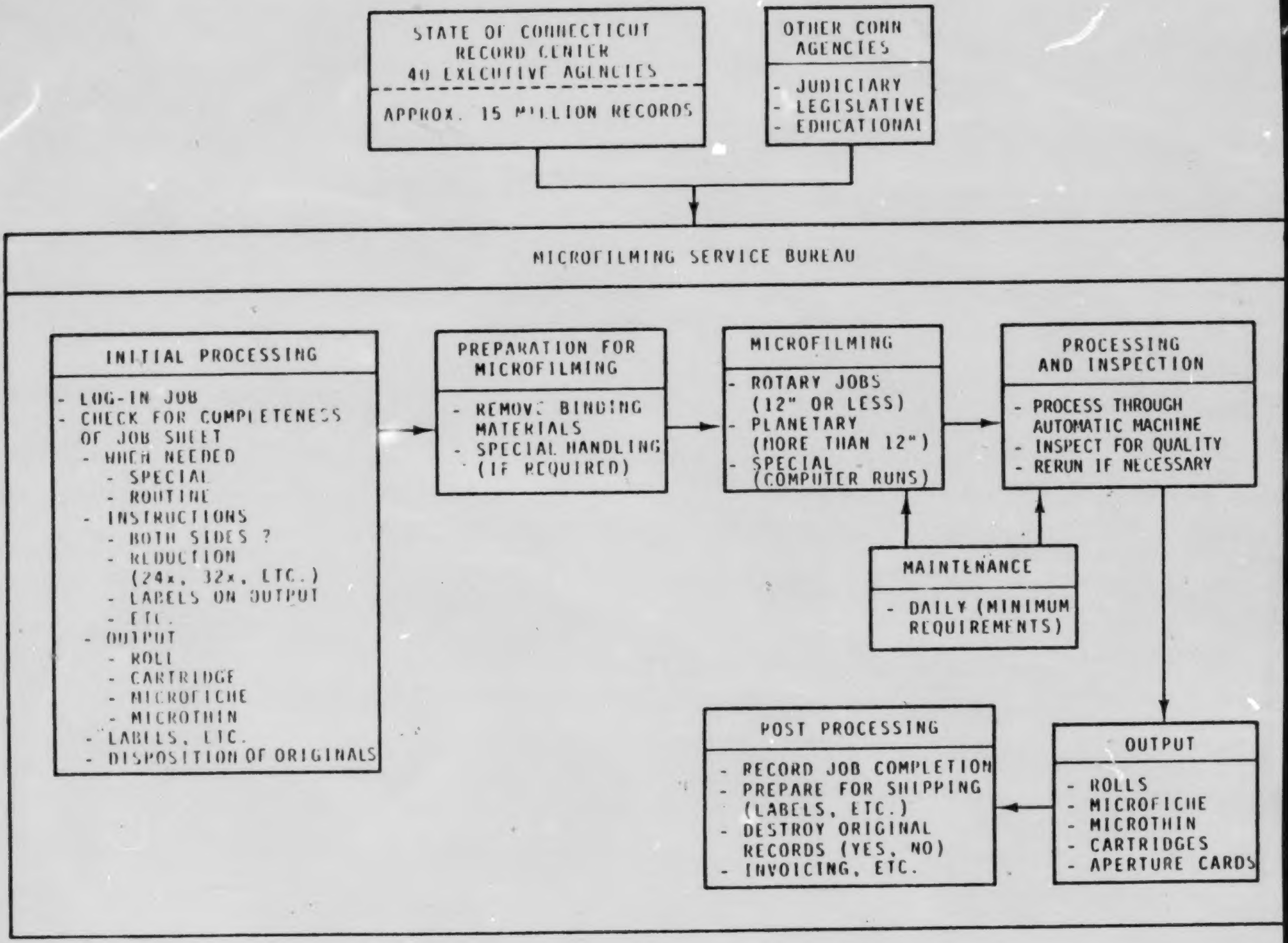
STATE OF CONNECTICUT RECORD CENTER
40 EXECUTIVE AGENCIES
APPROX. 15 MILLION RECORDS
OTHER CONN AGENCIES
- JUDICIARY
- LEGISLATIVE
- EDUCATIONAL
MICROFILMING SERVICE BUREAU
INITIAL PROCESSING
- LOG-IN JOB
- CHECK FOR COMPLETENESS OF JOB SHEET
- WHEN NEEDED
- SPECIAL
- ROUTINE
- INSTRUCTIONS
- BOTH SIDES ?
- REDUCTION (24x, 32x, ETC.)
- LABELS ON OUTPUT
- ETC.
- OUTPUT
- ROLL
- CARTRIDGE
- MICROFICHE
- MICROTHIN
- LABELS, ETC.
- DISPOSITION OF ORIGINALS
PREPARATION FOR MICROFILMING
- REMOVE BINDING MATERIALS
- SPECIAL HANDLING (IF REQUIRED)
MICROFILMING
- ROTARY JOBS (12" OR LESS)
- PLANETARY (MORE THAN 12")
- SPECIAL (COMPUTER RUNS)
PROCESSING AND INSPECTION
- PROCESS THROUGH AUTOMATIC MACHINE
- INSPECT FOR QUALITY
- RERUN IF NECESSARY
MAINTENANCE
- DAILY (MINIMUM REQUIREMENTS)
POST PROCESSING
- RECORD JOB COMPLETION
- PREPARE FOR SHIPPING (LABELS, ETC.)
- DESTROY ORIGINAL RECORDS (YES, NO)
- INVOICING, ETC.
OUTPUT
- ROLLS
- MICROFICHE
- MICROTHIN
- CARTRIDGES
- APERTURE CARDS

Figure III-1 Operations of a Microfilming Service Bureau

Customers of the service bureau will be encouraged to provide prepared, camera-ready documents. Preparation services will be provided for an additional charge. The actual microfilming process is relatively simple, and the machine that is used depends upon the type of job. The general purpose machine is a rotary camera that will accept records with a horizontal dimension of twelve inches or less. Larger jobs require a planetary camera, and there exists special equipment for such items as computer output. Processing may be done either using (relatively automatic) service bureau equipment, or it may be done by the film supplier such as Kodak. Maintenance of the equipment is minimal, requiring only about 15 minutes prior to work each day. The basic output is a roll of tape which contains, on the average, 2400 records.[1] Special products available are tape cartridges and specialized output formats such as microfiche, jackets and aperture cards. These latter products are useful for records that will be accessed, as opposed to those in storage.

### 3. Equipment, Space and Labor Requirements[2]

The following is a list of suggested equipment.[3]

---

[1] Based on records Management Center experience at 24X reduction. Depending upon the uses of the microfilmed records, reductions of 32X or 40X might be made.

[2] The estimates presented in this section reflect discussions with Mr. Rieke of the Records Management Center. The scale of operations is sufficient to service the state's executive agencies, local governments, hospitals, school districts, etc.

[3] The leading manufacturers, i.e., Kodak, Bell & Howell, 3M, etc., provide similar equipment.

- 4 rotary cameras
- 1 small planetary camera
- 1 large planetary camera
- 1 computer printout camera
- 1 microfiche system
- 1 jacket system
- 1 daylight film processer
- 1 equipped darkroom with
  - contact printer
  - diazo printer
  - visicular printer

The approximate cost of this equipment is $125,000 (1976 prices).[4] An initial capability could be acquired for $25 to $30 thousand, and annual additions of cameras and special purpose equipment might follow. Options usually include rental and/or leasing. This would reduce the initial cash flow burden, but would raise prices.

The space requirements are approximately 2000 square feet. This includes two storage areas, one for receipt and holding of records prior to processing, and the second for the retention of the original records for 60 days after microfilming. The latter is a legal requirement to permit verification of the microfilm product by the agency for whom the job was done.

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[4] The size of the operation was suggested by Mr. Rieke to be sufficient for servicing the requirements of the administrative branch of state government.

Because vibration is a potential problem, especially for the planetary cameras--the cameras are on tall uprights--it is preferred that the actual microfilming be done on the ground floor. (In this regard, the "CETA Building" at Enfield was inspected and appears to be adequate from the standpoints of total space and a ground floor area. Yet to be verified are the quality of the water and the strength of the floors).

Labor requirements are for one supervisor and seven inmate workers. This estimate does not include workers for the preprocessing of documents for camera-readiness, i.e., seven unskilled persons.

### 4. Annual Costs, Prices and Profitability

Table III-1 contains an annual costs summary of a microfilming service bureau operation designed to handle approximately 10 million records per year. The major cost factors are direct labor (which may be reduced if the Records Center assumes the burden for a supervisor), depreciation of equipment (10 year straight-line method used) and indirect overhead. This latter category includes heat and other utilities, transportation charges, administration charges, etc. It is only a rough approximation because costs for Enfield have not been estimated as they were for Somers.

Based upon the estimated costs and a profit of 21 percent, the price list given in Table III-2 was prepared. The savings over a private service bureau are approximately

Table III -1 Microfilming Service Bureau Costs[1]

| | |
|---|---|
| DIRECT | |
| ● LABOR | |
| - 7 INMATE WORKERS @ $1,983/YEAR[2] | $13,881 |
| - 7 UNSKILLED WORKERS @ $1,747/YEAR | 12,229 |
| - 1 SUPERVISOR[3] @ $10,500/YEAR | 10,500 |
| TOTAL LABOR | $36,610 |
| ● MATERIALS (PER ROLL)[4] | |
| - FILM AND CHEMICALS | $5.75 |
| - CARTRIDGES (OPTIONAL, EA.) | 1.75 |
| OVERHEAD | |
| ● DIRECT | |
| - SERVICE CONTRACT | $12,500 |
| - DEPRECIATION OF EQUIPMENT | 12,500 |
| - FRINGE BENEFITS | 2,100 |
| ● INDIRECT[5] | 23,400 |
| TOTAL OVERHEAD | $50,500 |

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[1] Based on a capability of approximately 10 million records per year.

[2] Average hourly compensation, $1.09.

[3] May be supplied by the Records Management Center of the State Library at no cost to industries.

[4] Assumes 2400 records/100 foot roll at 24X reduction (Records Center experience).

[5] Rough estimate based upon data for Somers' existing industries.

Table III-2 Microfilming Services Price List
(Per 1000 Records)

| | |
|---|---|
| FILM ONLY | $ 9.95 - 11.40 |
| FILM IN CARTRIDGES | 10.80 - 12.25 |
| MATERIALS PREPARATION | $1.10/HOUR |

NOTE: OTHER PRODUCTS INCLUDE MICROFICHE, MICROFILM IN JACKETS, APERTURE CARDS, ETC. THE RANGE IS DUE TO WHETHER THE SUPERVISOR IS SUPPLIED BY THE RECORDS MANAGEMENT CENTER.

Table III-3 Summary of Annual Revenues
(10 Million Records @ $11.85/1000)[1]

| | |
|---|---|
| REVENUES | $132,500[2] |
| COST | (114,714) |
| PROFIT | $ 17,786 |

[1] Average value including supervisor's cost.

[2] $14,000 added for materials preparation.

[1] Average value including supervisor's cost.

[2] $14,000 added for materials preparation.

25 percent.[5] An additional 5 percent is saved if the supervisor's salary and benefits are not included.

Total annual revenues cost (labor, materials and overhead) and profits are summarized in Table III-3.

### 5. Job Market Outlook

Microfilming services are categorized on SIC 7399, "Miscellaneous Business Services, not elsewhere classified", along with such other services as trade shows organization, credit card collection service, handwriting analysis, florist telegraph service, shoe design and yacht brokerage. The jobs within a Microfilming Service Bureau are identified as clerk (most nearly related to the Census occupation category "library attendant, assistant"), and photographic processing worker. There are no formal education requirements for either job.

Table III-4 shows employment in Connecticut in SIC 7399, Miscellaneous Business Services, as reported in County Business Patterns. (The reader is cautioned that the reporting firms represent a variety of business services in addition to microfilming.) These firms are typically small; most employ less than 20 workers. A perusal of telephone directories for the major cities in the state shows approximately 25 microfilm service bureaus in Connecticut, concentrated in Hartford and New Haven.

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[5] This is based upon a basic price of $20.00 per thousand records for private bureaus.

Table III-4 Connecticut Employment SIC 7399 Business Services, Not Elsewhere Classified

| | Number of Employees | Number of Reporting Units | Number of Reporting Units, by Employment Size | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | 1-3 | 4-7 | 8-19 | 20-49 | 50-99 | 100-249 | 250-499 | 500+ |
| 1973 | 3,262 | 258 | 108 | 55 | 53 | 30 | 8 | 3 | 1 | - |
| 1972 | 3,177 | 249 | 91 | 59 | 58 | 28 | 8 | 5 | - | - |
| 1971 | 3,603 | 260 | 109 | 52 | 51 | 32 | 13 | 3 | - | - |
| 1970 | 3,645 | 261 | 108 | 55 | 51 | 30 | 10 | 7 | - | - |

Source: U.S. Department of Commerce, Bureau of the Census, County Business Patterns, 1970-1973.

Table III-5 Projected Employment, Connecticut

| | 1970 | 1980 | Change 1970-1980 | | Deaths and Retirements | Total Manpower Needs, 1970-1980 |
|---|---|---|---|---|---|---|
| | | | % | Net | | |
| Library attendants, assistants | 2,480 | 2,940 | 18.5 | 460 | 1,680 | 2,140 |
| Photographic process workers | 900 | 1,100 | 22.2 | 200 | 380 | 580 |

Source: Connecticut State Department of Labor, Occupational Outlook 1970-1980.

Table III-5 shows current and projected employment in Connecticut for the two occupational categories most directly related to jobs in a microfilming shop--library assistant and photographic process workers. There is a growing demand for photographic process workers, with an average of nearly 60 job openings each year. According to the Dictionary of Occupational Titles, workers trained as copy cameramen, i.e., who operate the cameras, will have acquired skills that can be applied in such other occupations as silk screen maker, stencil maker, line-up man, paste-up man or letterer. There are an anticipated 200 jobs available annually for library assistants in Connecticut. While not all of these jobs will involve microfilm processing, many of the cataloging skills used in a shop processing thousands of public documents yearly are directly transferable to other library work.

## C. Solar Energy Products

### 1. Background

The candidacy for a solar energy related prison industry derives from its incipient economic feasibility in state-use applications. This is due to the rising cost of power supplied by conventional power sources for heating and cooling of buildings, hot water production, etc. A further impetus for a solar energy-related prison industry is that it is a growth industry, and through demonstration to the private sector of economic applications in state use, jobs may be provided for the post-releasee.

In Connecticut, it is technically feasible to use solar energy for the space heating of buildings as well as in reduced-scale applications such as the production of hot water for washing, laundries, swimming pools, etc. Currently, there are some Federally funded demonstration projects for the large-scale, space heating applications. The economic feasibility of the reduced-scale applications has not yet been demonstrated.

Technically, a solar heating system is not significantly different from a conventional one, the difference being the solar collectors[6]. The installation process is similar to conventional heating systems, except that standard roofing materials are repalced by solar panels. Other than this, the rest of the equipment i.e., pipes, circulators, switches, etc. are essentially the same. Moreover, the skills used in installing conventional systems are sufficient for solar installations.

### 2. Findings and Recommendations

The product market for solar space heating is viewed as a combination of new (i.e., solar) equipment and off-the-shelf hardware. Commercialization of solar (thermal) technology depends upon economic factors, and the economic issue is one of demonstrating that the initial additional costs of solar installations over conventional systems are more than offset by reduced

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[6] Mr. Paul Maycock, Chief of Economic Analysis and Industrial Liaison Branch, and Dr. Roger H. Bezdek, Division of Solar Energy, Energy Research Development Administration have provided their insights to this section.

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fuel costs over the operational life of the system. The key to this appears to be large-scale mass production.

If it is true that the only way solar panels can be produced at economically competitive prices is by mass production and that all other equipment is off-the-shelf, it seems unlikely that there is anything that could be done within the context of a prison industry environment that would result in a viable business enterprise.

On the other hand, although a solar energy product for reduced-scale applications uses many off-the-shelf hardware items, there is significant fabrication that could be done within the context of a prison industry. The developer[7] of one such product has expressed interest in an agreement whereby his product would be franchised to a prison industry for sale to the state-use market. This would produce not only franchising revenues for his company, but also would serve as a demonstration that should increase the rate of private market commercialization.

It is premature, at this time, to make a determination of the viability of a solar energy related prison industry. More study is required of the comparative economics of solar versus conventional systems, the most efficient solar approaches and suppliers and the role of a prison industry.

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[7] Mr. Everett Barber, President, Sunsearch, Inc., New Haven, Connecticut.

## D. Metal Products Industry

### 1. Background

Two classes of products are associated with this industry: tubular furniture and sheet metal products. The reason for combination of the two is that there is joint production capability with respect to the capital and labor force. It is also the case that the (outside) job market relates equally to workers experienced in both classes of products.

The tubular products normally manufactured in this industry include school furniture, lounge furniture, costumers, clothing racks, utility stands, etc. Furniture is normally made from steel tubing, round or square, finished with either baked enamel, epoxy powders or chrome plate.

The sheet metal products operation normally starts with manufacture of standard steel storage shelving. As operators become efficient in the fabrication of this basic item of shelving, additional tooling is introduced to produce such products as steel lockers, filing cabinets, and eventually, steel desks.

### 2. Description of Industry Operations[8]

The operations of tubular furniture manufacturing basically consist of tube cut-off, swaging, bending, welding and finishing. For school furniture, seats and backs are attached to tubular frames. Production of lounge furniture normally involves a variety of upholstery operations.

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[8] Source data was taken from a letter report requested by ECON, Inc. from the John R. Wald Co., Inc.

The operations of sheet metal products production generally consist of shearing, punching/notching, forming, welding and finishing. Most of the welded assembly is by spot welding. Finishes are normally baked enamel.

As suggested above, tubular furniture and sheet metal production can be coordinated within the same shop since many of the operations are duplicated. Of particular interest in coordinating the two is the utilization of one finishing system for both classes of products.

The following list describes, in sequential order, the processing steps within a typical metal products operation.

1. Cutting - Shearing, abrasive cut-off, flame cutting, blanking die, etc.
2. Punching, notching, circle shear, etc.
3. Forming, bending, etc.
4. Welding - Arc welding, wire welding, inert gas welding, brazing, spot welding, etc.
5. Finishing - Metal treatment

   Baked enamel finish
   Powder
   Spray
   Plating - cadmium or chrome

6. Assembly
7. Packaging and Shipping

Support services include warehousing, office, engineering and maintenance support.

### 3. Capital and Manpower Requirements

A basic plant to include all of the fabricating operations of a tubular furniture manufacturing operation, together with the finishing system, would require an expenditure of $250,000 to $300,000. This would represent a complete installation, including tooling, product drawings and supervisory training. It includes a finishing system that would be shared with the sheet metal products operation.

The incremental cost for the sheet metals operation given a common finishing system is between $320,000 and $400,000. This includes all machinery, tooling and product drawing information, together with the necessary supervisory and instruction services. The total setup cost for a combined operation would be between (approximately) $570,000 and $700,000.

Personnel requirements range from 40 to 80 workers, depending upon the size of the operation. The space requirements will vary (with output capability) from 20 to 40 thousand square feet. From experience with other metal products industries, the minimum requirement is 40 men and 20 thousand square feet. The following is a list and quantities of the basic equipment:

#### Tubular Furniture Assembly

1 End Finish Machine

1 Bender Press

| | |
|---|---|
| 1 | Rotary Press |
| 1 | Swager w/Feed |
| 1 | OBI Press |
| 2 | Grinding/Buffing Machines |
| 1 | Abrasive Cut-off |
| | Miscellaneous Grinding/Sanding tools |
| 2 | Wire Welders |
| 3 | Gas Welding & Cutting Systems |
| 1 | Lot Square Tube Tooling |

### Basic Sheet Fabricating

| | |
|---|---|
| 1 | Hydraulic Shear |
| 4 | Hydraulic Press Brakes |
| 1 | 50 KVA Spot Welder |
| 2 | 40 KVA Spot Welders |
| 1 | Wire Welder |

### Paint Finishing System

| | |
|---|---|
| 1 | Three-stage Washer |
| 1 | Bake Oven |
| 1 | Dry-Off Oven |
| 4 | Hot Airless Electrostatic Systems |
| 1 | Monorail System |
| 4 | Water Wash Spray Booths |

### Powder Finishing System

Powder Spray Equipment

Monorail System

Bake Oven

Tooling Package

Includes: Tooling, detail and process drawings and supervision and training.

### 4. Marketing Analysis[9]

Metal products are generally not final consumer goods. Rather, they enter into the manufacture and assembly of many other products. For this reason, tracing the complete market for metal products is a complex task. Estimates have been prepared for the purchases of metal products by state and municipal governments.

Extensive data are available on the state's purchases for fiscal year 1975, and all purchases involving metal products have been extracted. Table III-6 shows commodities involving metal products, with corresponding dollar value of purchase. Part A of the table refers to furniture related products. As indicated, a high proportion (94 percent) of state purchases of furniture products could be made by prison industries. A small percentage was regarded to be infeasible for prison industry production. Also, 80 percent of so-called non-furniture items could be produced by prison industries. Together, there is a potential sales volume (based on the state's fiscal year 1975 purchases) of approximately $1.1 million.

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[9] A profitability analysis was not performed in this industry due to the decision to postpone this new venture until one full year of operation of the other Free Venture Industry shops has been experienced.

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### Table III-6 State Market For Metal Products, Fiscal Year 1975, Thousand of Dollars

| A. Furniture ( * ) | Purchase | Potential Prison Industry Production |
|---|---|---|
| Hospital Furniture (3712) | $ 57.4 | $ 17.2 |
| Household Furniture (3718) | 159.7 | 159.7 |
| Industrial Furniture (3732) | 13.6 | 13.6 |
| Laboratory Furniture (3736) | 171.6 | 171.6 |
| School Furniture (3742) | 13.1 | 13.1 |
| Miscellaneous Furniture (3760) | 31.4 | 26.2 |
| Public Renting Equipment (3766) | 18.8 | 18.8 |
| Shelving, Partitions and Lockers (3772) | 115.3 | 115.3 |
| Office Furniture | 159.1 | 159.1 |
| SUB TOTAL, Furniture | $ 740.0 | $ 694.6 |
| **B. Non-Furniture Items** | | |
| Playground Equipment (0560) | 2.2 | 2.2 |
| Sheet Metal Products (1360) | 309.2 | 309.2 |
| Kitchen, Cafeteria Equipment (3124) | 172.4 | 86.2 |
| Ladders and Accessories (4926) | 4.6 | 4.6 |
| Scaffolding Equipment (4940) | 37.8 | 18.9 |
| SUB TOTAL, Non-Furniture | 526.2 | 421.1 |
| TOTAL METAL PRODUCTS | $1,266.2 | $1,115.7 |

* Connecticut Product Classification Number

It is noted that the estimates do not include the large construction-related market for metal products. This was not estimated due to the lack of accessible data. However, it should be a considerable market.

There exists, in addition, a substantial market in school furniture at the municipal school district level. The potential annual volume of this market for prison industries is estimated to be $1.5 million.

### 5. Job Market Outlook

Production of metal furniture and fixtures is classified in three SIC categories: 2514, metal household furniture; 2522, metal office furniture; and 2542, metal partitions and fixtures. The main jobs involved in the production of metal furniture are power squaring shear operator, press brake operator, punch press operator, welder and spray painter. These jobs correspond most directly to the Census occupational categories "sheet metal workers, tinsmiths" and "semiskilled metalworking operators."

Tables III-7 to III-9 indicate Connecticut employment in firms classified in SIC's 2514, 2522 and 2542, as reported by the Bureau of the Census in County Business Patterns. From these tables, it can be seen that the metal household furniture and metal office furniture industries are each dominated in Connecticut by one large firm, and that the metal partition industry has not shown great stability over the past five years. On the whole, employment by

Table III-7 Connecticut Employment SIC 2514 Metal Household Furniture

| | Number of Employees | Number of Reporting Units | Number of Reporting Units, by Employment Size | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | 1-3 | 4-7 | 8-19 | 20-49 | 50-99 | 100-249 | 250-499 | 500+ |
| 1973 | 201 | 4 | - | - | 2 | 1 | - | 1 | - | - |
| 1972 | 204 | 6 | - | - | 4 | 1 | - | 1 | - | - |
| 1971 | 214 | 7 | - | - | 4 | 2 | - | 1 | - | - |
| 1970 | 215 | 6 | - | - | 2 | 2 | 2 | - | - | - |

Source: U.S. Department of Commerce, Bureau of the Census, _County Business Patterns_, 1970-1973.

## Table III-8 Connecticut Employment SIC 2522 Metal Office Furniture

| | Number of Employees | Number of Reporting Units | Number of Reporting Units, by Employment Size | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | 1-3 | 4-7 | 8-19 | 20-49 | 50-99 | 100-249 | 250-499 | 500+ |
| 1973 | 274-556* | [illegible] | - | - | 3 | - | - | - | 1 | - |
| 1972 | 262-539* | 4 | - | 1 | 2 | - | - | - | 1 | - |
| 1971 | 262-539* | 4 | - | 1 | 2 | - | - | - | 1 | - |
| 1970 | 294-605* | 5 | - | - | 3 | 1 | - | - | 1 | - |

*Employment ranges shown where publication of exact figures would violate disclosure laws.

Source: U.S. Department of Commerce, Bureau of the Census, County Business Patterns, 1970-1973.

Table III-9 Connecticut Employment SIC 2542 Metal Partitions and Fixtures

| | Number of Employees | Number of Reporting Units | Number of Reporting Units, by Employment Size | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | 1-3 | 4-7 | 8-19 | 20-49 | 50-99 | 100-249 | 250-499 | 500+ |
| 1973 | 106 | 5 | 1 | - | 1 | 3 | - | - | - | - |
| 1972 | 100 | 5 | 1 | - | 1 | 3 | - | - | - | - |
| 1971 | - | - | - | - | - | - | - | - | - | - |
| 1970 | - | - | - | - | - | - | - | - | - | - |

Source: U.S. Department of Commerce, Bureau of the Census, County Business Patterns, 1970-1973.

Connecticut firms whose primary business activity is the production of metal furniture and fixtures is at a relatively modest level, i.e., less than 1,000 employees in 1973. However, skills used in the production of these metal products are also used in many other industries--automobile, appliance, farm machinery, etc.; therefore, occupation-specific employment data are more likely to be indicative of job market conditions than are industry-specific data.

Table III-10 presents past (1970) and projected manpower requirements in Connecticut for the trades in a metal furniture shop: sheet metal workers and semiskilled metalworking operatives. As can be seen from the table, the number of sheet metal worker positions is expected to decline, with the only job openings resulting from deaths and retirements. Semiskilled metalworking jobs also show a projected decline, although at a much slower rate. However, the higher incidence of replacement openings ensures the availability of a large number of positions, particularly for grinder operators, punch press operators, and welders and flame cutters.

Semiskilled metalworking jobs do not have formal education requirements; typically a metalworker must be able to interpret written, oral or diagrammatic instructions. Training time ranges from one to six months for semiskilled metalworking, from one to two years for welding, and from

Table III-10 Projected Employment, Connecticut

|  | 1970 | 1980 | Change 1970-1980<br>% | Net | Deaths and Retirements | Total Manpower Needs, 1970-1980 |
|---|---|---|---|---|---|---|
| Sheet metal workers, tinsmiths | 3,880 | 3,430 | -11.6 | -450 | 600 | 150 |
| Semiskilled Metalworking Operatives: | 31,070 | 30,800 | - 0.9 | -270 | 8,940 | 8,670 |
| - Drill Press | 2,940 | 2,710 | - 7.8 | -230 | 1,060 | 830 |
| - Grinding Machine | 5,800 | 6,070 | 4.7 | 270 | 1,620 | 1,890 |
| - Lathe, Milling Machine | 4,940 | 4,730 | - 4.3 | -210 | 1,010 | 800 |
| - Metal Platers | 1,620 | 1,500 | - 7.4 | -120 | 410 | 290 |
| - Punch Stamping Press | 3,980 | 4,090 | 2.8 | 110 | 1,940 | 2,050 |
| - Solderers | 1,470 | 820 | -44.2 | -650 | 530 | -120 |
| - Welders and Flame Cutters | 5,910 | 6,130 | 3.7 | 220 | 1,360 | 1,580 |

Source: Connecticut State Department of Labor, Occupational Outlook 1970-1980.

six months to a year for flame cutting. These trades are unionized, the largest union being the Sheet Metal Workers International Association, an affiliate of the AFL-CIO.

Skills learned for these jobs are directly transferable to nearly two hundred closely associated machine trades, according to the Dictionary of Occupational Titles. For example, a worker trained as a grinding machine operator will be able to perform, with only orientation instruction, at least 24 other jobs (e.g., lapping machine operator) involving the same skills and general training requirements. Another highly transferable ability is soldering, which shares skill and training requirements with approximately 30 other jobs.

## E. Musical Instrument Repair

### 1. Background

There are several aspects of musical instrument repair that make it attractive as a new prison industry. Most important, there is a clearly definable demand for musical instrument repair in Connecticut schools--approximately $413,000[10] is spent annually for repairs--and there is an inadequate supply of repair mechanics. Convenient marketing mechanisms exist in the form of informal networks among music teachers and publications of the Connecticut Music Educators Association. By contracting for regular maintenance of school instruments, prison-based musical instrument repair may be very attractive to boards of education and music educators in Connecticut. The music supervisors interviewed by ECON staff were unanimously enthusiastic at the prospect of prison industry providing musical instrument repair.

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[10] This value includes piano tuning.

### 2. Description of Musical Instrument Repairwork

Usual repair jobs are labor-intensive and nontechnical, falling into general categories based on the type of instruments being repaired. Brass instruments most frequently have dents removed or valves adjusted; wind instruments receive level adjustments or have pads replaced; string instrument repairs include bow repairings, neck repairs, bridge replacements and piano tunings. Except for piano tuning, repairs and overhauls usually take place on the as-needed basis.[11]

The craftsmen who perform these repairs may learn their trade as informal apprentices to skilled repairmen or as the result of instrument school training.

No formal education requirements exist (an eighth-grade level of education should suffice). However, an instrument repairman must generally possess the ability to perform ordinary arithmetic procedures and to interpret a variety of instructions which may be furnished in written, oral, diagrammatic or sequential format. He or she must further be able to deal effectively with a number of specific variables in situations where standardization may be limited.

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[11] It has been suggested by an expert in instrument repair that savings would accrue were instruments checked and maintained on a routine basis.

Specific vocational training time varies with specialization in particular musical instruments. For example, on-the-job training for repair of percussion instruments or for rehairing bows ranges from one to two years. The Eastern School of Musical Instrument Repair in Union, New Jersey, offers a two-year course. The graduate is prepared to repair virtually any instrument except pianos and piano tuning. The Director of the school, Mr. Frederick Kirschner, believes that a thorough one-year course in prison would provide the necessary skills to repair (non-piano) instruments.

### 3. Start-Up of a Musical Instrument Repair Shop

Before any repairs can be done, there must be an initial period of training. As training and experience increase, the workers can move up from minor repairs to major overhauls.

Start-up costs include basic tools, equipment, materials and the salary of a trained mechanic. The training materials could be provided by the Eastern School of Music Instrument Repair in Union, New Jersey, at a cost of about $10,000. The cost of initial (first year) equipment and materials is approximately $23,000 ($15,000 equipment, $8,000 materials). The equipment and some fraction of the initial materials would be used for productive work after the initial training period.

## 4. Markets and Profitability of a Musical Instrument Repair Shop

State School Market: Four distinct sources of demand for musical instrument repair associated with use of instruments in Connecticut public schools have been identified from the following indices: the amount of money budgeted annually by local Boards of Education specifically for musical instrument repairs; the amounts spent annually on repairs not covered by regular budget allocation (e.g., school bands' repairs frequently are not included in regular budgets); the amounts spent on repairs by students who own and maintain instruments which are used in school programs, and the amounts budgeted for repairs at State universities and colleges. Judged by these resource allocations, local Boards of Education spend more than $400,000 a year on musical instrument repair.

### Local Schools' Musical Instrument Repair Budgets

Based on interviews with business managers and supervisors at the Boards of Education in twelve Connecticut cities and towns, an average annual expenditure on instrument repair per instrumental teacher was calculated. The results appear in Table III-11. Assuming that the budget allocations and the numbers of music teachers in these towns are reasonably representative of patterns in the rest of the State, instrumental teachers comprise approximately forty

## Table III-11 Result of Interviews

| Town | Number of Music Specialists | Number of Instrumental Teachers | Musical Instrument Repair Budget 1975-1976 | Repair Budget per Instrumental Teacher |
|---|---|---|---|---|
| Hamden | 16 | 5 | $ 2,120 | $ 424 |
| Greenwich | 27 | 9 | 4,154 | 460 |
| Hartford | 40 | 11 | 4,500[1] | 410 |
| West Hartford | 40 | 25 | 19,000 | 760 |
| New Haven | 42 | 13 | 4,000 | 308 |
| Farmington | 8 | 2 | 600 | 300 |
| Newington | 17 | 8 | 4,500[1] | 563 |
| Bloomfield | 11 | 3 | 3,000 | 1,000 |
| Simsbury | 13 | 8 | 1,300 | 163 |
| Stamford | 38 | 17 | 5,000[2] | 294 |
| Norwalk | 31 | 13 | 5,000 | 385 |
| Weathersfield | 10 | 3 | 1,000 | 333 |

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[1] Estimated by respondent.

[2] Stamford had budgeted an additional $26,000 for lease/repair contracts for all instruments used in the elementary schools.

percent of all music teachers, and the budget allocation per instrumental teacher for musical instrument repair averages $475/year. On the average, 40-45 percent of a school's musical instrument repair budget will be allocated to piano tuning.

Connecticut public schools employ 1,199 music teachers, of whom 479 (40 percent) are instrumental teachers. With an average yearly repair budget of $475 per instrumental teacher, the State of Connecticut currently spends an estimated $227,525 per annum on musical instrument repair for public school music programs, of which approximately $125,000 is spent for repair of instruments other than pianos.

## Public School Bands' Repair Expenditures

Conversations with eight public school band directors yielded an expenditure estimate of $600 per band for yearly repairs. Repairs of band instruments may or may not be included in the musical instrument repairs budgeted for a school system by the local Board of Education; in a majority of cases, however, band instrument repairs are paid separately. Therefore, in order to calculate annual band repair costs, it was assumed that two-thirds of the bands in Connecticut public schools spent $600 each for yearly instrument repair. There are at least 250 bands in the State; thus, annual repair expenditures are roughly $100,500 (2/3 x 250 x $600).

## Repairs of Privately Owned or Leased Instruments

There is no standard practice in school systems relating to owning or leasing instruments used in school music programs. One consistent figure obtained from the band directors interviewed is that at least one-third of all secondary level band participants own their instruments rather than use school-owned or leased equipment. In other words, the annual repair estimate of $600 per band is roughly two-thirds of the total amount spent on repairs, assuming a constant yearly expenditure per instrument. Further assuming that all the public school bands are in secondary (i.e., middle and high) schools, the annual repair expenditure for privately-owned instruments is approximately $75,000 ($300 x 250). This value is not meant to be indicative of the repair bill for all privately owned instruments.

## Instrument Repair Expenditures in Colleges and Universities

There are two main areas of musical activity in Connecticut institutions of higher education, viz., music departments and music teacher education programs. Western Connecticut State College, Central Connecticut State College, Southern Connecticut State College and the University of Connecticut offer music majors, for example, and Southern Connecticut, Western Connecticut and the University of Connecticut offer music education programs. While many student musicians supply and maintain their own instruments, the schools generally furnish pianos for practice rooms as well as some of the large instruments (e.g., percussion) for bands and orchestras. In addition, a broad inventory of instruments must be maintained for music education programs.

Musical instrument repairs do not appear as a line item on college and university music department budgets; however, a member of the music department at the University of Connecticut estimated that the University and the State Colleges together spend about $10,000 annually on instrument repairs, of which $7,000 is devoted to piano tuning. The University has by far the largest repair budget: $5,000 annually, with 60 percent going for piano repair and tuning.

## Potential for Expansion of Market

There are several indications that the state-use market for musical instrument repair, even if confined to public school music programs, will show growth. For example, the music supervisor for schools in New Haven predicted that there will be an increase in orchestral training programs, adding to the demand for dependable stringed instrument repair. Almost all of the music specialists we interviewed volunteered that good stringed instrument repairs were already difficult to obtain.

Several of the school officials mentioned that their 1975-1976 allocations for musical instrument repair are lower than usual, reflecting decreased state appropriations for education. While there may not be an increase in total school expenditures in the near future, there may, however, be an increase in instrument repairs as repairs that are now being deferred can no longer be postponed. Pianos are tuned regularly twice a year, while other repairs are performed on individual instruments as needed. School instruments generally require a major overhaul once every three or four years and minor repairs every two years. A prison industry repair shop might be able to arrange long-term maintenance contracts with school districts and provide them with substantial savings.

Two channels exist by which the public school instrument repair market may be reached. The Connecticut Music Educators Association publishes a newsletter several times during the academic year, which carries advertisements for musical instruments sales and repair. The newsletter reaches all music educators in the State. Moreover, the public school music teachers in Connecticut form a tightly-knit network, and personal communications among teachers are a major source of information exchange.

We were told that existing suppliers of musical instrument repair service are not able to handle the present volume of repair business in Connecticut. Thus, it may be feasible to capture some of the private sector market, e.g., private schools, music schools, amateur and professional musicians. Musical instrument repair may be a good candidate for an "inside/outside" industry with community-based work programs servicing the "outside" (open) market.

There are five or six instrument sales establishments that provide repair services. Typically, these stores subcontract repair work to freelance craftsmen who may work out of one of the large music stores for a few days a week and work on their own the other days. These craftsmen are known personally by the people who use their services. The instrument repair "consumers" to whom we spoke, i.e., the music supervisors, felt that the craftsmen would not be threatened by the existence of a training program for instrument repairmen, as they are primarily concerned with providing quality service and already have more business than they can handle. It was even suggested that some of these craftsmen might be willing to help train apprentices.

Table III-12 contains projected costs of the repair shop. The workers would be paid according to the following scheme:

| | |
|---|---|
| First 3 months | $1.00/day |
| Second 3 months | 6.78/day |
| Third 3 months | 10.50/day |
| Fourth 3 months | 15.75/day |

Thereafter, 2 workers @ $7.00/day
2 workers @ $15.75/day
3 workers @ $21.00/day [12]

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[12] The distribution of wages is accounted for by the assumed productivity differences and the turnover of workers as new, unskilled, men replace skilled workers who are ready for release.

Table III-12 Musical Instrument Repair Costs (Dollars)

| Cost Item | Year of Operation | | |
|---|---|---|---|
| | 1 | 2 | 3 |
| ● Labor | | | |
| - Supervisor | 10,500 | 10,500 | 10,500 |
| - Workers | 15,483 | 27,000[2] | 27,000 |
| ● Materials | 18,000[1] | 28,000 | 28,000 |
| ● Overhead | | | |
| - Direct | 3,600 | 3,600 | 3,600 |
| - Indirect | 23,400 | 23,400 | 23,400 |
| TOTAL COSTS | 70,983 | 92,500 | 92,500 |

[1] $10,000 for instruction materials and set up of training program, $8,000 for materials.

[2] This value is based on the average skill mix of the repair shop.

The projected revenues of the shop are given in Figure III-2. It is assumed that the Prison Industry shop would charge 75 percent of the private market price, i.e., $15 per job rather than $20.[13]

Based upon an average repair price of $20 and non-piano repair costs of $225,000, there were approximately 11,250 repairs of publically owned instruments. A trained mechanic should repair about 6 instruments per day, 1,500 per year. Adjusting for the average productivity of the shop (as unskilled trainees replace skilled workers) the shop should be able to service approximately seventy-one percent of the repairs of the state boards of education, and eventually save the state $40,000 per year.

Figure III-2 shows revenues increasing to $120,000 (75 percent of the price the boards of education are estimated to currently pay) after 15 months from start-up.[14] Over the first three months, revenues are zero, while initial training is being done. Over the next twelve months, the repair capability is built up to the point that 71 percent of the repair work can be performed. (cf. footnote 14.)

If the assumptions required by this analysis are reasonably valid, the revenues, costs and profitability of a

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[13] The variations in cost of jobs is considerable, ranging from a minimum of $6-$8 for a minor repair to $150-$160 for major overhauls of some instruments. According to our estimate, major overhauls are likely to occur every four years and minor repairs every two years. We have assumed an average price of $20.

[14] The shop's average productivity is estimated to be 71 percent of that of skilled workers, i.e., they have the average training to do 71 percent of the jobs. $120,000 ≅ $225,000 X .71 X .75.

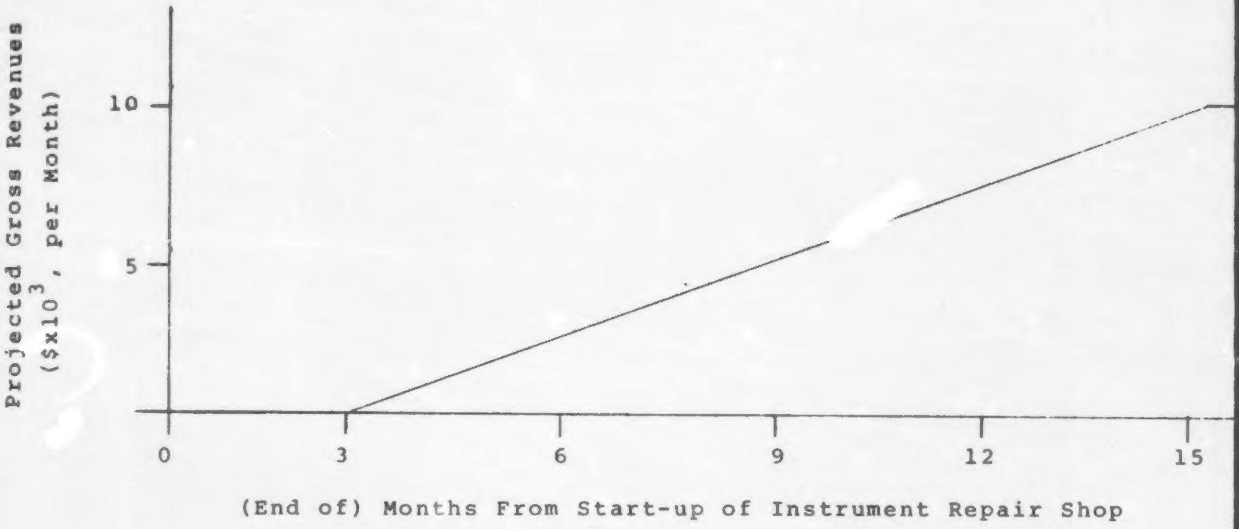

Figure III-2 Revenue Projection of a Prison Industry Musical Instrument Repair Shop

musical instrument repair shop would be as shown in Table III-13. Also indicated in Table III-13 are the savings projected for the public consumers, the boards of education. These, predicated on 25 percent savings over current costs, are seen to be substantial and certainly leave a wide margin for error in the projections for this shop.

### 5. Job Market Outlook

"Musical Instrument Repair" is too specific to warrant a separate SIC code; it is included in SIC 7699 (along with typewriter and small engine repair). From a perusal of telephone directories for major cities in the state, there appear to be at least 60 establishments offering musical instrument repair; only about ten of these were mentioned consistently by musicians and educators as providing reliable and quality repair. In addition to employment with a repair establishment or self-employment, a trained musical instrument mechanic possesses skills that are transferable to musical instrument manufacture (SIC 393). Table III-14 shows employment in Connecticut in firms primarily engaged in the manufacture of musical instruments and parts, as reported in County Business Patterns. The size of firms in SIC 393 varies considerably, being nearly equally divided between very small firms and moderate size firms.

Another indication of possible employment prospects is given in Table III-15, which shows projected manpower

### Table III-13 Instrument Repair Shop: Revenues, Costs, Profits

| Item | Year | | |
|---|---|---|---|
| | 1 | 2 | 3 |
| Revenues ($) | 47,250 | 116,000 | 120,000 |
| Costs ($) | 70,983 | 92,500 | 92,500 |
| Profit ($) | (23,733) | 23,585 | 27,500 |
| Savings to boards of education ($) | 11,200 | 38,500 | 40,000 |

Table III-14 Connecticut Employment SIC 393 Musical Instruments and Parts

| | Number of Employees | Number of Reporting Units | Number of Reporting Units, by Employment Size | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | 1-3 | 4-7 | 8-19 | 20-49 | 50-99 | 100-249 | 250-499 | 500+ |
| 1973 | 425 | 8 | 2 | 2 | - | 1 | 1 | 2 | - | - |
| 1972 | 374 | 7 | 2 | 2 | - | 1 | 1 | 1 | - | - |
| 1971 | 467 | 9 | 2 | 1 | 1 | 2 | 1 | 2 | - | - |
| 1970 | 415 | 8 | 2 | 2 | - | 2 | 1 | 1 | - | - |

Source: U.S. Department of Commerce, Bureau of the Census, County Business Patterns, 1970-1973.

Table III-15 Projected Employment, Connecticut

| | 1970 | 1980 | Change 1970-1980 | | Deaths and Retirements | Total Manpower Needs, 1970-1980 |
|---|---|---|---|---|---|---|
| | | | % | Net | | |
| Piano, organ tuners and repairmen | 150 | 160 | 6.7 | 10 | 60 | 70 |

Source: Connecticut State Department of Labor, Occupational Outlook 1970-1985.

requirements for workers in the occupation of piano and organ tuners and repairmen. (Occupation projections have not been prepared for other musical instrument repairmen as a discrete group.) It is anticipated that there will be annual job openings for an average of seven piano or organ tuners and repairmen during the ten year period ending in 1980.

On a less stringent basis, it is possible to estimate the number of musical instrument repairmen needed in Connecticut by making certain assumptions about the number of instruments for which one repairman can provide maintenance service. If there are an estimated 200,000 privately owned instruments and 12,000 instruments owned by public schools and one repairman can maintain 3,500 instruments, there exists potential employment for 60 musical instrument repairmen in Connecticut. From our interviews, it is clear that there are far fewer than 60 repairmen working in the state now--the number of reputable repairmen seems to be closer to ten.

## F. Bakery Products

### 1. Background

The candidacy of bakery products as a new industry is based on the volume of these products purchased by the state, and on the fact that Somers currently bakes its own bread and rolls, which are of very high quality. The production methods are well known and established within the institutions. The state buys close to $1 million worth of perishable baked products every year. At the same time, the State Purchasing Agency operates a bakery which produces $300,000 worth of baked goods annually. This bakery supplies all state agencies, including schools, which have no outside (commercial) food service. Consideration is currently being given to expansion of this bakery to double its current capacity.

The Somers bakery currently produces only for institutional consumption, and it is obvious that a large-scale, industrial type operation would require a separate facility geared to much larger volumes. This is mainly a matter of planning, investment and installation. Depending on the types of products that Somers would or could make, the potential product sales volume would range between $300,000 and $640,000, annually.

The volume figures quoted above represent only state purchases of baked goods. There also exists a large market at the municipal level. This market is difficult to estimate in its entirety because it is dispersed over many purchasing units. However, a rough order of magnitude estimate can be developed by focusing upon the school system. There are 650,000 students in public (primary and secondary) schools in Connecticut. Not all schools operate cafeterias and not all children buy their lunches. By conservative estimates, the consumption of bread and rolls in schools runs in excess of 300,000 slices (or equivalent) per school day. The price of distributed bread is approximately 1 cent per slice, which sums to $3,000 per school day. Assuming 150 school days per year, there is an annual expenditure of $450,000. This would constitute the major part of the municipal market for baked goods. Adding this value to the state portion, there exists a (conservative) market for baked goods of at least $750,000 per year.

### 2. Job Market Potential

Currently, there are approximately 2,000 bakers in Connecticut. The State Department of Labor has estimated that between 1970 and 1980, total manpower needs for bakers will number 820.[15] Most of these openings are due to deaths or retirements; 80 new positions are anticipated. Therefore, there may be some competition for these jobs.

### 3. Recommendations

Before a decision can be made regarding bakery products as a prison industry, the problem of scheduling and routing must be resolved. The products of the industry must be baked and delivered daily. A food service industry is also a possibility. This represents a new dimension for prison industry operations, and is one that must be viewed from the points of view of cost and security. A separate study of the daily transportation and distribution problems posed by this candidate industry is recommended.

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[15] Connecticut Department of Labor, Employment Security Division, Occupational Outlook 1970-1980.

## G. Data Processing

### 1. Background

Two significant markets--public and private--exist in Connecticut for data processing services. The private market for those services that are feasibly provided within an (prison) institutional environment are sufficient to warrant the start-up of a service bureau.

The current market for data processing services, products and supplies for the state and local governments is also substantial, approximately $40 million per year.[16] The Department of Finance and Control operates a comprehensive, centralized data processing facility used by many state agencies. This department also monitors, and in many cases approves, all expenditures related to data processing: equipment rentals and leases,[17] purchases of supplies and ancillaries and personnel requisitions.

### 2. Organization of a Data Processing Service Bureau

It is recommended that the new shop be set up as a not-for-profit corporation which would lease space from the prison and would have an agreement with the prison to provide training and production experience for inmates. The wages to inmates would be determined from a 100 percent distribution of gross profits, i.e., revenues minus all direct expenses and overhead, exclusive of inmate labor charges.

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[16] Estimate of personnel of the Connecticut Department of Finance and Control.

[17] The state as a rule does not purchase data processing equipment.

The service bureau would start out with ten inmate trainees who, for the first three to six months, would spend their full day involved in a training program concerning the use of terminals and the running of existing computer packages, e.g., statistical routines, report writers, data-based management systems. These packages would be provided by a time-sharing vendor. There would be one full time instructor/supervisor who would teach the group of 10 inmates the use of the time-share terminals and the "packages" provided by a time-sharing service.

In the second six months of the first year of operation, it is envisioned that the students would begin to exercise their training by running jobs which had been contracted for by the not-for-profit corporation for various private sector clients. It is assumed that the amount of work to be contracted out during the second six months would not exceed the capability of the supervisor to service completely by himself--should this be necessary. At some point during the first year of operations, there would also be a salesman hired who would attempt to develop a backlog of business for the second year of operation.

### 3. Capital and Manpower Requirements

The capital equipment necessary for the service bureau in a start-up mode would include three terminals for the training period--one of which includes a tape playback capability and a CRT screen. These rent for $200 a month. The other two machines rent for $90 each a month. In addition to these basic units, other terminals would be acquired as a backlog of business is built up. Specifically, for each $3,000 of business per terminal per month backlog, one additional terminal would be required on a lease basis.

It is assumed that $6,000 to $9,000 of computer time would be needed for the training period and $2,500 in terminal lease charges for the training period. Additionally, six month's of the supervisor's time--over which he is devoting his time to training only--should be allocated to capital. This would amount to $10,000, and includes the instructor's salary and fringes.[18]

Total capital requirements are estimated to be about $12,500. No purchases of equipment are, however, required. It is envisioned that the space requirements include (a) a classroom for the ten inmates plus instructor, (b) a terminal room sufficient to house four to five terminals, (c) an office for the shop instructor/supervisor, and (d) a study/work area for five inmates. Rough estimates for the space needed for each one of these functions are:

- Classroom - 250 square feet (also used as a Study/Work area);
- Terminal Room - 200 square feet;
- Instructor/Supervisor Office - 120 square feet.

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[18] The instructor's annual salary is estimated to be $16,000 plus 25 percent ($4,000) in fringe benefits.

## 4. Market Analysis

A nonprofit corporation working within the prison would have access to both the private and public markets for data processing services. Of those shops analyzed, this, therefore, is the first that is viewed differently from a prison industry, *per se*. It thus provides marketing opportunities that were hitherto unavailable.

### The Private Market

Several firms in the Hartford area have expressed a desire to contract to outside workers to input to and execute programs that are provided by time-share companies. This could be done during hours when service rates are at a minimum (early morning and evenings). One extremely knowledgeable individual has expressed his belief in the high likelihood of a service bureau directed toward this market being able to become self-sustaining within eighteen months of start-up.

### The Public Market

This market has two components, the state and municipalities. It is acknowledged that there have been some past difficulties with the state market regarding a previous prison industry data processing service bureau. This should be remedied by effective management of the service bureau.

The State currently spends approximately $20 million per year on data processing; these expenditures have grown, even during a period of frugality. There would appear to be ample opportunity for prison industries to provide a variety of data processing-related services: data entry (keypunching, key-to-tape, etc.), operating, software development (systems and applications programming), services and maintenance, etc. Undoubtedly these opportunities exist, but substantial resistance is expected to be encountered in most cases. There are several reasons for this resistance; since they pose a substantial problem in developing this market, details follow.

1. The principal customer is also the principal competitor. Finance and Control not only supervises and passes on the technical and financial merits of all proposed purchases, but also provides all these services. This is particularly true of software development. Finance and Control currently has a policy of doing all of their work in-house, with the exception of very specialized scientific software applications, for which it does not have the capability.
2. There is reluctance on the part of many individuals and agencies to entrust work in sensitive areas (payroll and disbursements, justice and law enforcement, personnel, security, etc.) to present and former prison inmates. This attitude is quite widespread

within Finance and Control. The attitudes within other state agencies might be different; to determine this would require more extensive surveys and interviews than have been possible so far.

3. The previous and recently terminated venture of Correctional Industries into data processing left a distinctly negative impression with the officials involved. The reasons for the failure of this venture, which originally was meant to be a training operation, can be traced back to inadequate supervision at all levels.

Having stated the problems, the following is a discussion of the opportunities for a data processing service bureau, along with safeguards and provisions required to overcome the obstacles just presented.

There is a substantial market for keypunching and other data entry activities. In fact, the female Correctional Institution at Niantic is already involved in a substantial operation of this sort. The market for keypunching is currently estimated at close to $1 million a year. Finance and Control spends about $250,000 in a normal year--there have been much larger peak years. Other agencies, such as Social Services, have large requirements of their own which they regularly contract out.

Computer programming is simultaneously the most desirable activity for those inmates who are qualified (both for financial and rehabilitative reasons), and the most sensitive one. All three objections listed earlier apply particularly to this area. The task of providing software development service is difficult, although not impossible. The opportunities for sabotage are many and varied, ranging from simple mischief and negligence to major embezzlement and blackmail. The objection stated by one Department of Finance and Control official was that it would require as much manpower to check the software produced as it would to produce it in-house in the first place.

The answer to the problem of software development on the part of Correctional Industries lies in rigorous inmate worker selection, closely supervised training, and even more closely supervised and carefully managed production, following careful selection of initial projects and clients. The amount and quality of supervision would have to be well beyond what is generally required in the industry outside.

The corresponding marketing activity would also require special efforts. These would involve public relations activities to educate prospective customers, and development of close working relationships with actual customers during project selection and quality control supervision of the finished product.

The potential market for this software activity is very difficult to estimate. At the low end, less than $500,000 is currently spent annually for software outside of Finance and Control. Most of it goes for specialized packages. On the other end, the state employs over 500 data processing personnel (74 percent of these people are programmers and programmer-analysts), which suggests a substantial volume of data processing activity.

In summary, the market for data processing services at the state level is very large, and some portion of it is undoubtedly accessible to Prison Industries. However, the obstacles and difficulties are also substantial; and a determined, long-range effort on the part of Prison Industries would be required to penetrate it. At the same time, we note that there are currently in existence several data processing installations operated by prison inmates and former inmates in Massachusetts and Minnesota.

The municipal and local market for data processing services is quite different from the state market in terms of applications, sophistication, disaggregation and interests. The three negative factors operating at the state level have little or no impact at the municipal level. Most towns have limited data processing capabilities of their own. Their applications tend to be less sensitive in most cases, and the officials themselves are less sensitive to the issue of services provided by inmates. Furthermore, there is no knowledge of Correctional Industries' previous involvement with data processing.

At present, the principal data processing applications at the local level fall into two major categories:

1. Justice and law enforcement - Although nominally local in character, present applications in this category consist of local police department tie-ins to the statewide and state-operated law inforcement information system. Thus, although local expenditures are considerable (estimated at $11 million per year), they are mainly for rental of terminals and communications lines. There is no requirement for new, locally developed, software and operation is by communications or clerical personnel on an as-needed basis. The only possible application would be equipment maintenance. This might be explored further if Correctional Industries should decide to provide equipment maintenance services.
2. Mechanization of tax assessables is the most widespread data processing application at the local level. Expenditures for this application by the towns surveyed amount to approximately $1 per capita per year, yielding an aggregate market for this application of about

$3 million per year (including equipment rentals, clerical and operating personnel, supplies, etc.).

In addition, some of the larger and wealthier towns have mechanized such applications as payroll, accounts payable and personnel records. These applications however, are not widespread.

In most cases, these applications are run on a service bureau basis at local installations. It was found that in many cases the local data processing installations belonged to CBT, a data processing subsidiary of the Connecticut Bank and Trust Company. However, no evidence was found of a major, coordinated effort to capture this market on a systematic basis.

The opportunities for Correctional Industries in a data processing market at the local level lie in developing complete applications packages for various categories of customers, and then providing continuous service. Since most towns do not have the resources to develop such a package, this could be a very salable product. The following packages are envisioned:

1. Local governments: tax assessables, including billing to taxpayers; accounts payable; payroll; personnel records.

2. Local school districts: classroom scheduling; report cards; statistical and reporting requirements for state; accounts payable; payroll; personnel records.

3. Local traffic departments; parking and local moving violations.

The overall market would be substantial, involving central and/or local data processing equipment rentals, development of software, running of programs on a periodic basis, etc. The ultimate size of the market might run to the tens of millions of dollars, including rentals, and might employ a substantial number of people.

It should be noted that competition in the data processing industry in Connecticut is keen. There are a large number of manufacturers, technical representatives, software houses and service bureaus competing for the various segments of the market. Correctional Industries would have to be quite competitive in price, quality of service and delivery.

5. Job Market Outlook

Data processing services are identified by (1967) SIC 7392, management and other private consulting services. Table 15 shows Connecticut employment in SIC 7392, as reported in County Business Patterns. Classification procedures used by the Department of Commerce are not entirely accurate for firms employing less than ten workers; therefore, the figures

Table III-16 Projected Employment, Connecticut

| | 1970 | 1980 | Change 1970-1980 | | Deaths & Retirements | Total Manpower Needs 1970-1980 |
|---|---|---|---|---|---|---|
| | | | % | Net | | |
| Computer Programmers, Systems Analysts | 5,590 | 6,480 | 15.9 | 890 | 1,220 | 2,110 |
| Other computer specialists | 400 | 470 | 17.5 | 70 | 60 | 130 |
| Computer Peripheral Equipment Operators | 2,700 | 3,790 | 40.4 | 1,090 | 720 | 1,810 |
| Keypunch Operators | 6,140 | 5,350 | -12.9 | -790 | 3,680 | 2,890 |

Source: Connecticut State Department of Labor, Occupational Outlook 1970-1980.

in Table 15 should be taken as approximations. These data indicate that more than half of the firms in SIC 7392 are small, with less than eight employees, and that the number of business consulting firms has increased between 1970 and 1973. At the same time that the number of firms increased, however, the number of employees decreased. It may be estimated that nearly half of the firms in SIC 7392 are data processing firms, insofar as telephone directories for the state's major cities list approximately 200 data processing firms.

Data processing personnel are, of course, employed in many industries other than business consulting. The number of workers in data processing occupations in Connecticut has been compiled by the Connecticut Department of Labor, along with projections of future manpower needs in these occupations. This information is presented in Table 15. With the exception of keypunchers, data processing occupations show substantial expected growth for the 1970-1980 period, and total manpower requirements for the ten year period are ample for all occupations.

Skill requirements vary according to occupation. Keypunching skills are similar to those needed for typing, and can be learned relatively quickly, i.e., between three and six months training time. As in typing, accuracy is desirable. Computer operation requires slightly more general educational background than does keypunching; for

### Table III-17 Connecticut Employment SIC 7392
### Business Consulting Services

| | Number of Employees | Number of Reporting Units | Number of Reporting Units, by Employment Size | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | 1-3 | 4-7 | 8-19 | 20-19 | 50-99 | 100-249 | 250-499 | 500+ |
| 1973 | 5,191 | 446 | 208 | 101 | 81 | 29 | 20 | 7 | - | - |
| 1972 | 5,303 | 415 | 197 | 77 | 84 | 32 | 15 | 9 | 1 | - |
| 1971 | 5,487 | 400 | 197 | 79 | 69 | 30 | 14 | 9 | 2 | - |
| 1970 | 5,801 | 375 | 174 | 81 | 63 | 30 | 14 | 10 | 3 | - |

Source: U.S. Department of Commerce, Bureau of the Census, *County Business Patterns, Connecticut, 1970-1973.*

example, a computer operator must be able to interpret technical manuals as well as drawings and specifications. Training time for computer operators can range from one to two years. Computer programmers and systems analysts need a high school education and specific vocational training for two to four years, depending on the programming applications for which they are being prepared.

## IV. SURVEY OF DEPARTMENT OF CORRECTION INMATE INFORMATION SYSTEM

### A. Introduction

This section presents an evaluation of the existing offender-based information system, and recommendations toward an improvement of the existing system. This study is restricted to that part of an overall information system dealing directly with data processing effort related to offenders. As such, aspects of a potential information system that can incorporate management information, financial status, business reports, etc. at a minimal marginal cost are excluded from this study.

Connecticut was one of the first states to introduce a computerized data system to the Department of Correction, in 1968-69. Since then, LEAA has made substantial commitment to develop a comprehensive and standardized criminal justice information system through the efforts of Search Group, Incorporated in Sacramento, California. As part of this effort, a model corrections information system has been developed; more than ten states participated in this effort. Although these information system developments took place after the establishment of the information system at Connecticut, Connecticut has not participated in the membership of Search Group, Incorporated, during the developmental phase of the standardized corrections information system. As such, the early work done in Connecticut, though unique, has not developed into a well planned "standard" information system. This problem has been compounded by the fact that, in the Connecticut Department of Correction, the percentage of the total budget allotted to the information system is significantly lower than the corresponding national standard. On the average, the budget for information systems in city and county governments across the nation is 1.4 percent of their total operating budget.[1] Private communication with the Department of Correction in Illinois indicates that its budget for the information systems is 1.5 percent of the total budget for that department. In Connecticut, however, the corresponding figure is approximately 0.7 percent, i.e., half of the national average (the budget for the Department of Correction is approximately $27 million, and that for the information system is approximately $200,000).

A careful look has been taken at the various problem areas related to the existing information system at the Connecticut Department of Correction and recommendations are set forth for their solution. As will be elucidated later in the report, all the existing problems are attributable to a single factor, which can be described as lack of an overall plan and implementation scheme. Therefore, it is recommended that the existing system be run at a minimal operational level for an interim period, during which time, rather than trying to improve upon the existing situation, an overall plan and implementation scheme is developed for meeting long-term objectives.

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[1] Datamation, February 1976, pp. 52-53.

## B. Findings

An informal sample survey[2] of the users of the information system recently conducted by ECON reveals that there are three major problem areas affecting the information system, namely:

1. lack of persuasive interaction with users,
2. lack of user confidence in information system due to incorrect outputs, and
3. lack of timely response to user requests.

These three issues are discussed in the following paragraphs.

### Lack of Persuasive Interaction with Users

The various user groups do not seem to have been sufficiently involved during the design and development phase. Consequently, users do not generally regard the system as a useful tool. Many potential users are not aware of the full capabilities of the system. One example is the 150-day projected minimum release list that has been in existence for quite some time, and is intended for use by the parole office. Surprisingly, the parole office has hardly ever considered using the list. Such examples are abundant, indicating that user interaction has much room for improvement. As a by-product of this lack of user interaction, the input data gathering forms have often become unwieldy, especially in jails.

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[2] The respondent samples for this survey consisted of the central office, P/PREP program, Somers Prison, Hartford Parole and Hartford jail at Syms Street.

In order to improve user interaction, various user meetings are held periodically. These meetings are attended by record supervisors, not all of whom can interact with the respective teleprocessing (TP) operators. Further, it appears that users have not been persuaded to attend these meetings. The responsibility for such persuasion lies with the management. However, in the face of a general lack of goodwill regarding the system and a lack of communication between management and information system personnel, it is not surprising that management assumes an attitude of indifference. One way to ameliorate the situation is to hold seminars to provide the management with three insights:

1. The economic advantage of having a satisfactorily operating information system. This requires a careful study of the economics of having versus not having the system.
2. A knowledge of what the system can and cannot do. This requires the availability of documentation that is comprehensible to non-technical personnel.
3. A reasonable understanding of the system operation. This requires an interaction with the system from a TP terminal carefully designed to facilitate the learning process.

Because none of the above steps have been taken to convince the management of the efficiency of an operational system, the general lack of enthusiasm among many potential users for the information system continues.

## Lack of User Confidence in System Due to Incorrect Outputs

In a number of cases, the computer output has, at least partially, been incorrect. The main reason for erroneous outputs is incorrect and/or incomplete data input. Only on rare occasions (e.g., court dockets) does the structure of the computer program itself affect the generation of correct output. In order to guarantee that input data are complete and correct, and are updated in a timely fashion, qualified data collecting personnel (AP room personnel, records personnel, TP operators and record supervisors) must be employed and held responsible for the quality of the data. It is only recently that certain responsibilities regarding quality control of data input have been designated down the line. Hence, it is too early to detect an impact. However, seven out of the fifteen TP units are still operated by inmates. Irrespective of whether they do a reliable job, such inmate-run operations are apt to suffer a lack of confidence among users regarding the quality of data input. To win confidence when negative attitudes exist is usually a long-term process. In this regard, the introduction of a new system is expected to serve the purpose better than would minor changes in the existing system.

## Lack of Timely Response to User Requests

Several users interviewed mentioned the undue delay they have experienced in obtaining a response to their information requests of a statistical nature. On some (not all) occasions, a manual search has proven quicker than the computer output (and perhaps more reliable). Such occurrences bear evidence against the basic rationale for having a computer system. The delays stem from a mixture of inadequacies in manpower and system capabilities. The system as designed requires a programming effort on a batch mode at the central office to answer each query of a statistical nature. This naturally creates a bottleneck, because the central office does not have the manpower to respond to all requests in a timely fashion while working in the existing batch mode. There does not seem to be a generalized search program to allow a user the flexibility of interacting directly with the system to get answers to his queries. It should, however, be emphasized that this direct access system is not at present recommended as an alternative because there are pros and cons. The remedy lies in clearly defining the objective of batch mode of operation and then designing a system to meet that objective, keeping in view the economics of the batch mode as compared to that of the direct access mode.

## A Few Manifestations of Lack of Planning

The previous paragraphs describe the problem areas that surfaced during the sample survey of users. A schematic flowchart of these problems and the causal relations among them is illustrated in Figure IV-1. As

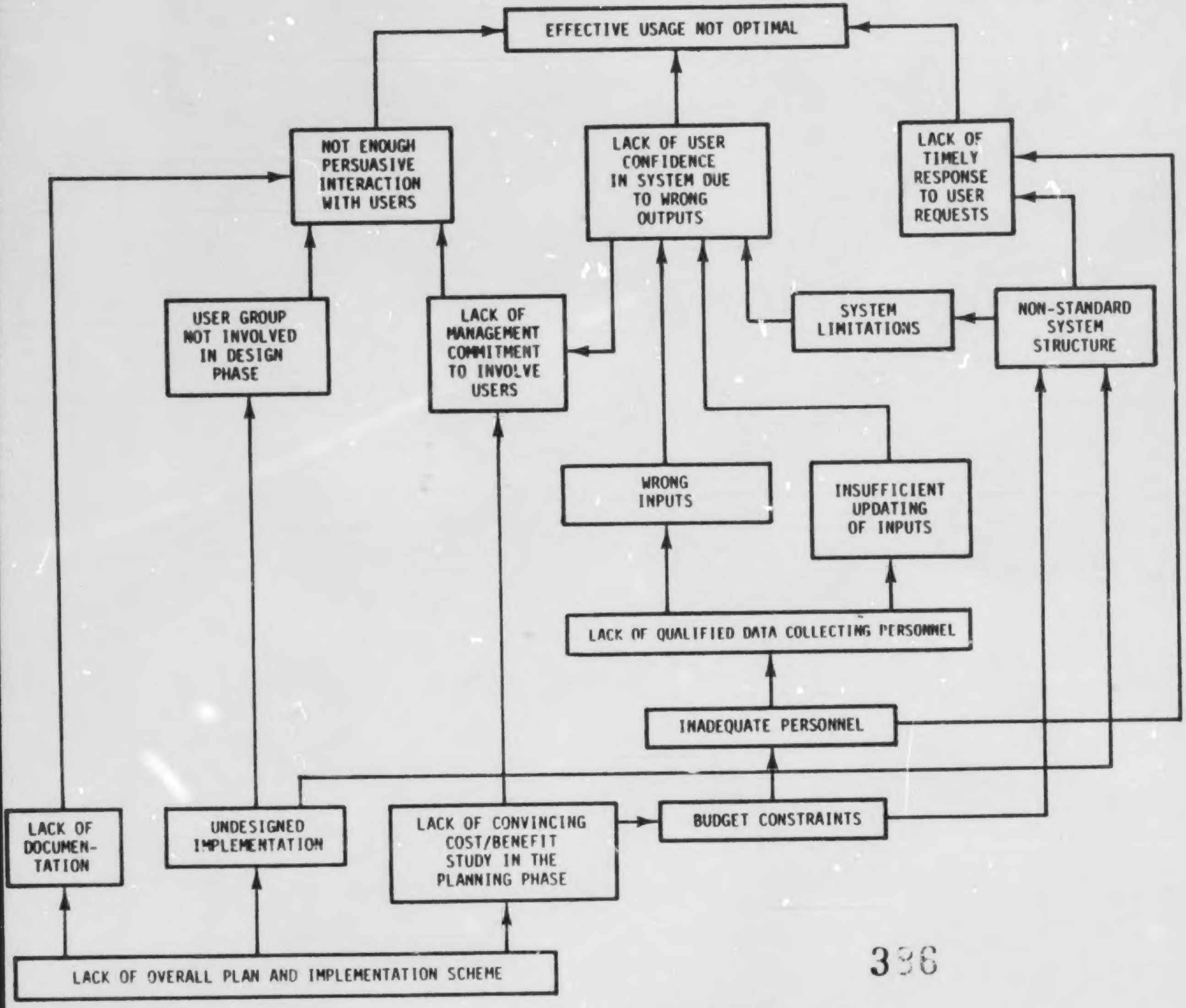
EFFECTIVE USAGE NOT OPTIMAL
NOT ENOUGH PERSUASIVE INTERACTION WITH USERS
LACK OF USER CONFIDENCE IN SYSTEM DUE TO WRONG OUTPUTS
LACK OF TIMELY RESPONSE TO USER REQUESTS
USER GROUP NOT INVOLVED IN DESIGN PHASE
LACK OF MANAGEMENT COMMITMENT TO INVOLVE USERS
SYSTEM LIMITATIONS
NON-STANDARD SYSTEM STRUCTURE
WRONG INPUTS
INSUFFICIENT UPDATING OF INPUTS
LACK OF QUALIFIED DATA COLLECTING PERSONNEL
INADEQUATE PERSONNEL
LACK OF DOCUMENTATION
UNDESIGNED IMPLEMENTATION
LACK OF CONVINCING COST/BENEFIT STUDY IN THE PLANNING PHASE
BUDGET CONSTRAINTS
LACK OF OVERALL PLAN AND IMPLEMENTATION SCHEME

Figure IV-1 Information System Problem Areas

outlined in the paragraphs above, the problems have been traced to a lack of overall plan and implementation scheme. A few obvious manifestations of this fundamental shortcoming are:

1. lack of an economic assessment of the savings that can acrue from a computer information system and the associated cost of developing such a system,
2. the implementation of an unplanned system which did not involve users at the beginning, and has become a non-standard system that lacks any established usage priorities, and

3. lack of documentation for the existing system, hindering the introduction of the system to users and management, and rendering the system vunerable to any possible reshuffling of the few people knowledgeable in it.

### Budget Constraints

Earlier, it was mentioned that in Connecticut the percentage of the Department of Correction's budget allocated to the information system is significantly lower than the corresponding national average. An initial step to improve the situation is to undertake a study of the economic benefits of various alternative (computer as well as manual) systems with various levels of sophistication, and the corresponding costs of implementing such systems. Such a study facilitates the selection of the most cost-effective system, and thereby provides the department an instrument with which to approach various potential sources of funding. Due to a lack of an overall system planning, this valuable instrument was never prepared, partially explaining the tight budget constraint that exists today for the information system.

## C. Recommendations

As mentioned in the previous section, the problems associated with the existing information system stem from a lack of an overall plan and implementation scheme. Hence, a recommendation is made to maintain the current system at a minimal level of operation for an interim period. This would allow the diversion of some effort towards formulating a sound plan leading to an estimate of the budget requirement for the design and implementation of the most cost-effective information system. The actual design and implementation can only follow the funding of that budget.

### Curtailment of Existing Activity Over Interim Period

The areas in which curtailment can be effected over the interim period without seriously jeopardizing the existing system are:

1. suspension of system development and diagnostic "fire fighting," and
2. restriction of research inquiries to high priority items.

It is estimated that this curtailment will free as much as 90 percent of a systems analyst's time which is equivalent, at pay grade 23, to a saving of approximately $50 per day.

Another curtailment that has been considered is the possible discontinuation of teleprocessing units at the low activity terminals, which can save up to $90 per day.

A problem with this approach is that it takes a month's notice to discontinue a TP terminal, and it takes a much longer notice to reinstate it at a future date if desired.

## Plan for Meeting Long-Term Objectives

This plan is designed to be initiated with immediate effect. It is estimated that it will cost the Department of Correction between \$2,000 and \$3,000(in staff labor) to produce a consolidated plan which includes an initial budget estimate for the design and implementation of a standard cost-effective information system. The cost estimate of this plan is illustrated in Table IV-1. The various steps constituting this plan are outlined below:

1. Organize Planning Team
   A planning team should be set up by the Commissioner, who can designate a Deputy Commissioner to head the team activities. This arrangement is suggested with the intent of taking the new information system out of the Research Department right from the planning phase and putting it under the direct control of a Deputy Commissioner. According to this organization structure, the Research and Special Programs Group is viewed as one of the many potential users of the information system rather than the one responsible for the day-to-day operation of the system.

   The entire team is envisioned as consisting of one Director of Information System, one Systems Analyst (with some programming support, as needed) and one Administrative Assistant to the Deputy Commissioner --all reporting to the Deputy Commissioner.

   The Director of Information System should have at least two essential qualifications. He should have sound experience in information system design, and he should have proven ability to communicate with management and users[3]. The Systems Analyst should

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[3] One possibility is to bring in an outside resource to perform this function.

| Task | Commissioner | Deputy Commissioner | Administrative Assistant | Information Director | Systems Analyst |
|---|---|---|---|---|---|
| Organize Planning Team | 1 | 1 |  | 1 |  |
| Define Charter | .5 | .5 | .5 | .5 | .5 |
| Define System Objectives | .5 | 1 | 2 | 1 | 1 |
| Outline Steps for Design |  | .5 | 5 | 5 | 2 |
| Determine Budget/Funding | 1 | 1 | 5 | 5 | 2 |
| TOTAL PERSON DAYS | 3 | 4 | 12.5 | 12.5 | 5.5 |

EFFORTS REQUIRED FOR INITIAL PLANNING PHASE (PERSON DAYS) TABLE IV-1 have a thorough knowledge of the existing system and be familiar with state-of-the-art practice in information systems. Thus, (s)he necessarily has to be a person within the department, as knowledge of the existing system is essential for matching the existing system capabilities with existing and projected user needs and identifying the portions of the existing system that can be retained in designing the new system. The Administrative Assistant to the Deputy Commissioner should be able to assist the Deputy Commissioner in coordinating the efforts of the planning committee. It is the responsibility of the Commissioner to organize such a team and to assign responsibilities to the members of the team.

2. Define Charter
This involves deciding what the planning team is expected to accomplish, e.g., whether the effort should be restricted to offender-based information or should include other areas such as financial data, payroll, etc.

3. Define Information System Objectives
This includes initial consideration of the types of information desired by various users, the time frame within which such information is to be provided, and the ways and means to meet these requirements by manual versus computerized information systems.

4. Outline Initial Steps Towards System Design
This involves outlining and scheduling the tasks to be performed, including such details as a list of people to be interviewed, existing documents to be reviewed, the capabilities of the existing system to be examined, and literature to be collected on various alternative system designs along with their cost figures and the benefits that are claimed to accrue.

5. Determine Approximate Budget Requirements and Possible Funding Sources
This refers to an initial estimate of the budget needed for the projected design outlined in step 4 and for the implementation of said design. This also includes the identification of potential sources of funding, including the Department of Correction, State Planning Committee, LEAA, etc. Appropriate funding requests must then follow to be reviewed by the Commissioner.

The above constitutes the planning phase. The next two phases, viz., the actual design and its implementation, can only follow the funding of the budget. As such, they are not included in this section.

## D. Concluding Remarks

The findings and recommendations outlined in this section have been brought to the notice of the Connecticut Department of Correction, and the Department has already responded. A planning team has been organized. The charter and the objectives are in the process of being defined. Various prospective users are being approached to consolidate the information requirements. ECON was asked by the Department of Correction to provide an outside consultant for the initial system design and the formulation of the corresponding budget requirements. Meetings with this outside consultant have already taken place. The planning phase can be successfully completed in the foreseeable future.

# V. FREE VENTURE MODEL PRISON INDUSTRY PROGRAM EVALUATION

This section describes the definition of measures proposed for the evaluation of the Free Venture Model Prison Industry Program in three dimensions: institutional operations, prison industry operations and inmate post-release outcome. As a pretest and as a first step in baseline data collection, some of the evaluation instruments have been administered. Results, where applicable are reported.

## A. Institutional Operations

### 1. Evaluation Methodology

One of the primary objectives of institutional management is to maintain an atmosphere of calm, order and operational effectiveness. Measures of institutional tranquility and operational stability can serve as indicators of the degree to which these objectives are being met. These measures may also identify program impacts, to support an analysis of more obvious project evaluation measures related to economic effectiveness, job training and positive reintegration into the community.

A custodial analysis was conducted at Somers Correctional Institution to determine what information is available at the institution that could be used to measure institutional operations. The following were selected as indicators of overall institutional tranquility and operations, respectively:

- disciplinary infractions, vandalism and sabotage,

- job assignment mobility, absentee rate and shop "down time".

In order to test the feasibility of collecting data, a sample design and institutional documents were selected to determine whether data could be readily obtained on the above parameters. Inmates working in industry shops were assigned to one group; the rest of the population was assigned to a control group. The following paragraphs describe the data which were sought.

Disciplinary Infractions

Records of the frequency and nature of all inmate disciplinary infractions would be collected for the first three months of 1976. Data would be collected for all inmates at Somers, with those assigned to the industry shops serving as an experimental group and the remainder of the population as a control group. Infractions are divided into two classes--major and minor.

Major, or Class "A", infractions include such offenses as arson, assault, sexual misconduct, bribery, dangerous contraband, drugs and intoxicating substances, escape, flights, intoxication, riots and threats.

Minor, or Classes "B" and "C", infractions include creating a disturbance, destroying state property, self-mutilation, gambling, giving false information, disobeying a direct order, loitering, stealing, tampering with locks or safety devices, using insulting language, malingering, holding contraband and violating institutional rules.

### Vandalism and Sabotage

The second measure of institutional tranquility would document the degree, frequency and type of destruction to institutional property for the experimental and control groups.

### Job Assignment Mobility

As an indication of operational effectiveness, the number of job changes in each of the industrial shops would be tabulated. The reasons for job changes would also be documented. If possible, the number of assignment changes in the rest of the institution would also be tabulated.

### Absentee Rate

Another measure of operational effectiveness would be the rate of absenteeism for inmates, instructors, and correctional officer staff, and the reasons for these, over a three-month period. These data will only be collected on the industrial shop population.

### Shop "Down Time"

The final measure of operational effectiveness would be the amount of time lost in the industry shops due to machine breakdown, staff meetings, illness, lack of orders or other reasons. The close-down of shops for any reason would be documented over a three-month period for initial baseline data measurement. (This sample will, of course, consist only of inmates assigned to the industry shops.)

### 2. Evaluation Instruments

Existing institutional records at Somers were used to gather baseline data on institutional tranquility and operational effectiveness, i.e., no new data-gathering instruments were designed. The following paragraphs describe the source documents for each of the parameters listed in Section A-1.

### Disciplinary Infractions

The primary sources of this information were the weekly disciplinary reports and the Captain's Log, a daily record of activities kept by the senior officer. The number of disruptions for the experimental group in relation to the general population can be obtained for comparison purposes.

### Vandalism and Sabotage

Source documents used to gather data on the occurrence of acts of vandalism and sabotage were incident reports, the hall ledgers and disciplinary reports.

### Job Assignment Mobility

These data were obtained primarily from the daily transfer sheets and from classification records.

### Absentee Rate

Shop attendance records for inmates and instructors were readily available. The Captain's Log as well as the daily assignment sheet provided information on correctional officers' absences and the reasons for these absences.

### Shop "Down Time"

The shop records, the hall ledgers and the Captain's Log were checked for documentation of any or all times when a shop was closed during normal working hours.

### 3. Feasibility Study of Data Collection Effort

A custodial analysis was conducted at Somers Correctional Institution to determine what baseline information would be available for measurement of institutional tranquility and operation stability over a specific time period. Baseline data were collected for the previously defined measures of institutional tranquility and operations stability for the three-month period from January 1, 1976 to March 31, 1976.

#### Disciplinary Experience

The frequency and nature of all inmate disciplinary infractions were tabulated for the first three months of 1976 for the experimental group--all inmates assigned to the thirteen industry shops--and the control group--the remaining Somers population. Table V-1 indicates the average monthly population, the average number of inmates committing various disciplinary infractions and the average number of major and minor infractions committed by industry workers and by the remainder of the population.

An average of 63 individuals were involved in an average of 122 infractions each month during the three-month period from January through March of 1976. There was a total of 55 major infractions and 310 minor infractions over the three-month period. Since the number of infractions each month is greater than the number of individuals, some inmates are

## TABLE V-1

## SOMERS CORRECTIONAL INSTITUTION - AVERAGE POPULATION: 957

## DISCIPLINARY INFRACTIONS - TOTAL SAMPLE

## January 1, 1976 - March 31, 1976

| MONTH | AVERAGE MONTH'S POPULATION | NUMBER OF INDIVIDUALS WRITTEN UP | TOTAL NUMBER OF INFRACTIONS | NUMBER OF INFRACTIONS MAJOR | NUMBER OF INFRACTIONS MINOR | INDUSTRIAL SHOPS | REMAINING INSTITUTIONAL POPULATION |
|---|---|---|---|---|---|---|---|
| January | 952 | 69 | 140 | 18 | 122 | N = 261<br>No. 9 3.4%<br>Maj. 3 1.1%<br>Min. 14 5.4% | N = 691<br>No. 60 8.7%<br>Maj. 15 2.2%<br>Min. 108 15.6% |
| February | 959 | 51 | 90 | 15 | 75 | N = 265<br>No. 8 3.0%<br>Maj. 6 2.3%<br>Min. 7 2.6% | N = 694<br>No. 43 6.2%<br>Maj. 9 1.3%<br>Min. 68 9.8% |
| March | 961 | 70 | 135 | 22 | 113 | N = 290<br>No. 11 3.8%<br>Maj. 13 4.5%<br>Min. 5 1.7% | N = 671<br>No. 59 8.8%<br>Maj. 9 1.3%<br>Min. 108 16.1% |
| Average Number Per Month | 957 | 63<br>(see note) | 122 | 19 | 103 | N = 272<br>No. 9.33 3.4%<br>Maj. 7.33 2.7%<br>Min. 8.7 3.2%<br>(see note) | N = 685<br>54 7.9%<br>11 1.6%<br>95 13.9%<br>(see note) |

Legend
N = Average population in group during month
No = Number of individuals in the group who were written up for at least one infraction
Maj. = Major Infraction
Min. = Minor Infraction

NOTE: No attempt was made to identify those individuals who had infractions in more than one month during the period. For example, "No" could be as low as 11 in the shops and 60 in the rest of the institution if the same people were involved each month or as high as 28 in the shops and 162 in the rest of the institution if different individuals committed infractions each month. Expressing these ranges as percentages of the average population during the period, the total number of people in the industrial shops involved in infractions could range from 4.0 to 10.3%. For the remainder of the institutional population, this range goes from a low of 8.7% to a high of 23.6%.

clearly involved in more than one infraction per month. However, the number of individuals involved in infractions during the entire period was not reported, so it is impossible to determine how many inmates were written up in more than one month. Totalling the number of individuals for the three months could be misleading, since the same individuals might be committing infractions each month. In the worst case--if the inmates involved each month were different--190 separate individuals were involved in infractions during the three-month period, a rate of 19.8 percent of the average inmate population during the period. In the best case--the same inmates received disciplinary reports each month--a minimum of 70 individuals were involved, a rate of 7.3 percent.

Overall, the average proportion of industrial workers involved in any type of disciplinary action is 3.4 percent, compared to 7.9 percent in the remaining institutional population. The percentage of industrial shop workers involved in major infractions (2.7 percent) is not significantly different from the comparable percentage for the remaining population (1.6 percent). However, the rates of minor disciplinary infractions for the two groups are significantly different; minor infraction rate is 3.2 percent for the industry workers, as opposed to 13.9 percent for the remaining population at large. It should be noted that disciplinary infractions ascribed to industry workers are not limited solely to disciplinary problems occurring within an industry shop, but include infractions by industry workers outside of the shop as well. Thus, the rates for the two groups are directly comparable.

### Vandalism and Sabotage

Destruction that occurs within the institution and the shops is a valid measure of institutional tranquility. An examination of all incident reports, the hall ledger, and the Captain's Log showed no unusual reports in this regard over the three-month period. In fact, all the incidents recorded were routine disciplinary infractions of a major or minor nature. At no time during this quarter was either the institution or the shops closed down due to vandalism or sabotage.

### Job Assignment Mobility

The original intent was to compare the frequency of job changes for each of the industry shops and for the institution as a whole. This approach was too time-consuming; we had to limit our data collection to the industry shops. All job changes occur primarily by transfer on an emergency, temporary, or permanent basis. Table V-2 presents the number and type of transfers in each shop, as well as the reasons for job changes. Of an average monthly total of 239 individuals assigned to the thirteen industrial shops, 145 were transferred during the three-month period. Of these inmates,

## TABLE V-2

## SOMERS CORRECTIONAL INSTITUTION - AVERAGE POPULATION: 957

## JOB CHANGES WITHIN CORRECTIONAL INDUSTRY

## January 1, 1976 - March 31, 1976

| | PRINT | CLOTHING | UPHOLSTERY | DATA PROCESSING | LAUNDRY | SMALL ENGINE REPAIR | TYPEWRITER REPAIR | DENTAL LABORATORY |
|---|---|---|---|---|---|---|---|---|
| Number Assigned | 20-21 | 45-51 | 26-27 | 4 | 30-35 | 4-12 | 16-19 | 12-13 |
| Number Transferred | 20 | 37 | 6 | 4 | 15 | 5 | 2 | 7 |
| TEMPORARY | 10 | 11 | 4 | 1 | 4 | 2 | 1 | 1 |
| Segregation/ Punitive segregation | 5 | 5 | 1 | - | 2 | 1 | 1 | 1 |
| Hospital | 4 | 4 | 2 | 1 | 2 | 1 | - | - |
| Furlough | 1 | 2 | 1 | - | - | - | - | - |
| PERMANENT | 10 | 26 | 2 | 3 | 11 | 3 | 1 | 6 |
| Parole | 2 | 3 | 1 | - | 2 | 1 | - | 1 |
| Discharged | - | 2 | - | - | 1 | - | - | - |
| Conn. Corr. Centers | 2 | 3 | - | - | 2 | - | 1 | 1 |
| Drug Program | 1 | 1 | - | - | 1 | - | - | - |
| Auto School | 1 | 1 | - | - | - | - | - | - |
| Unassigned | 2 | 6 | - | - | 3 | - | - | 2 |
| School or Job | 2 | 10 | 1 | 3 | 2 | 2 | - | 2 |

## TABLE V-2 (continued)

## SOMERS CORRECTIONAL INSTITUTION - AVERAGE POPULATION: 957

### JOB CHANGES WITHIN CORRECTIONAL INDUSTRY

### January 1, 1976 - March 31, 1976

| | OPTICAL SHOP | INDUSTRY OFFICE | WAREHOUSE | SMALL APPLIANCE | FURNITURE | TOTAL |
|---|---|---|---|---|---|---|
| Number Assigned | 6-7 | 15-18 | 8-11 | 3-8 | 57-71 | 239 (see note) |
| Number transferred | 3 | 12 | 0 | 0 | 34 | 145 (100%) |
| TEMPORARY | 2 | 3 | - | - | 10 | 49 ( 34%) |
| Segregation/ Punitive segregation | 1 | 2 | - | - | 3 | |
| Hospital | 1 | 1 | - | - | 7 | |
| Furlough | - | - | - | - | - | |
| PERMANENT | 1 | 9 | - | - | 24 | 96 ( 66%) |
| Parole | - | 1 | - | - | 4 | |
| Discharged | - | - | - | - | 1 | |
| Conn. Corr. Centers | - | 2 | - | - | 2 | |
| Drug Program | - | - | - | - | 1 | |
| Auto School | - | - | - | - | 1 | |
| Unassigned | 1 | - | - | - | 6 | |
| School or Job | - | 6 | - | - | 9 | |

Note: The total shown is the average number of inmates assigned to all 13 shops each month during the three-month Period.

49 were transferred temporarily to segregation, punitive segregation, the hospital or furlough; ninety-six, or 66 percent of the transfers were permanent, i.e., parole, discharge, transfer to a community correctional center, drug program, automobile school, regular school, a different job or unassigned. The permanent transfers indicate a rapid turnover rate in several of the shops where, for example, 50 percent of all workers were permanently transferred from the print shop, 54 percent from the clothing shop, 34 percent from the laundry, 55 percent from the industry office and 38 percent from the furniture shop. The degree of mobility and job changes has a direct bearing on operational effectivenss.

Data on the temporary and permanent job changes were obtained from the daily transfer sheets. (This information is also available from classification records, but was impossible to obtain due to time constraints. This was the principal reason for limiting our focus to the industry shops.)

### Absentee Rate

The rate of absenteeism for inmates, instructors, and correctional officer staff, and the reasons for same, would likewise indicate the current degree of operational stability.

The time spent out of the shops during the working day for various reasons is indeed considerable. The competition for inmate time is keen and the reasons for lost time varied. Time away from the shops is used for emergencies and sick calls, segregation, school, group sessions, interviews, visitations, classification and job changes, disciplinary hearings, court attendance, parole board hearings and visits to the dentist, pharmacy, eye clinic, commissary, barber, law library and notary public.

Table V-3 reveals the rate of absenteeism for all inmates assigned to the 13 industry shops, 23 of the 25 assigned instructors, and 309 of the correctional officer staff over a three-month period. The average three-month absentee rate was 1.5 percent for inmate workers in the industry shops, 3.7 percent for the instructors and 2.6 percent for the correctional officers' staff. During months when staff take vacation or personal leave, these latter percentages will be higher.

Typical reasons for inmate absences were illness, court appearance, punitive segregation and transfers. Documented reasons for correctional officers' absences were for illness (self or family), visits to the doctor, or funerals (family or friend). Instructors' absences were for similar reasons.

Absentee data for shop-assigned inmates was primarily obtained from the monthly payroll records and cross checked with the daily transfer sheets. The instructors' absences were obtained through the industry manager's office. All of the data on correctional officers' absences were obtained from the captain's daily logbook.

## TABLE V-3

## SOMERS CORRECTIONAL INSTITUTION - AVERAGE POPULATION: 957

## ABSENTEE RATE

January 1, 1976 - March 31, 1976

| | JANUARY | FEBRUARY | MARCH | TOTAL |
|---|---|---|---|---|
| INDUSTRIAL SHOPS (13) | | | | |
| Inmates Assigned | 261 | 265 | 290 | |
| Total Man Days this mo. | 5481 | 5035 | 6670 | 17186 |
| Number of Days Absent | 76 | 105 | 82 | 263 |
| Average Rate % | 1.4% | 2.1% | 1.2% | 1.5% |
| Reasons: | | | | |
| Sick | breakdowns could not be determined | . . . . . . . . . . . . . | . . . . . . . . . | |
| Court | | | | |
| Punitive Segregation | | | | |
| Transfers | | | | |
| Shop Instructors (25) | | | | |
| Number Reported | 23 | 23 | 23 | |
| Total Man Days this mo. | 483 | 437 | 529 | 1449 |
| Number of Days Absent | 6 | 34 | 14 | 54 |
| Average Rate % | 1.2% | 7.8% | 2.6% | 3.7% |
| Reasons: | | | | |
| Sick | 5 | 27 | 6 | |
| Sick (Doctor) | 1 | 3 | 4 | |
| Sick (Family) | | | 2 | |
| Funeral (Family) | | 4 | 2 | |
| Funeral (Friend) | | | | |
| Court | | | | |
| Correction Officer (309) | | | | |
| Number Reported | 309 | 309 | 309 | |
| Total Man Days this mo. | 6489 | 5871 | 7107 | 19467 |
| Number of Days Absent | 171 | 172 | 168 | 511 |
| Average Rate % | 2.6% | 2.9% | 2.4% | 2.6% |
| Reasons: | | | | |
| Sick | 145 | 134 | 133 | |
| Sick (Doctor) | 12 | 16 | 14 | |
| Sick (Family) | 10 | 16 | 14 | |
| Funeral (Family) | 3 | 4 | 2 | |
| Funeral (Friend) | 1 | | 4 | |
| Court | | 2 | | |

## Shop "Down Time"

This was a difficult area to pin down, as no accurate records are kept of occasions when all or some of the shops are closed and for what reasons. Three shops having only one supervisor are closed when the instructor is not available. Attendance records provide this information. Occasionally, the Captain's Log will contain an entry on shop closedown. From the above sources and from various recollections on the part of staff, we were able to document the time periods of shop closedowns shown in Table V-4.

The data presented in Table V-4 indicate that roughly twenty-six days and four hours were lost when various shops were closed for the first three months of the year. The shops not included in the chart indicated no shop closings other than the supervisory meetings and late medication during this period. The shops having one supervisor, i.e., dental, optical, small engine repair and typewriter repair, must necessarily close when the instructor is not available.

## Continued Data Collection Efforts

It is recommended that similar information be collected each quarter until program implementation to form with the data presented herein, the baseline data set. Once programs are implemented, these data should continue to be collected in subsequent quarters for comparison to the baseline period.

## TABLE V-4

## SOMERS CORRECTIONAL INSTITUTION - AVERAGE POPULATION: 957

## SHOP "DOWN TIME"

## January 1, 1976 - March 31, 1976

| MONTH | ALL C.I. SHOPS (13) | | SMALL ENGINE REPAIR | | TYPEWRITER REPAIR | | UPHOLSTERY | | DENTAL LABORATORY | | LAUNDRY | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Time | Reason | Time | Reason | Time | Reason | Time | Reason | Time | Reason | Time | Reason |
| JANUARY | 1 hr. | Superv. meeting | 4 days | Superv. out | | | 3 days | Inventory | 2 days | Cleanup | | |
| FEBRUARY | 1 hr. | Superv. meeting | 4 days | Superv. out | 3 days | Superv. ill | | | 2 days<br>2 days | Superv. ill<br>Cleanup | | |
| MARCH | 1 hr.<br>2 hrs | Superv. meeting<br>Late medication | | | | | | | 2½ days | Cleanup | 1 day | Maintenance |
| TOTAL | 5 hours x 13 shops = 65 hours<br>2 2/3 days | | 8 days | | 3 days | | 3 days | | 8½ days | | 1 day | |

TOTAL TIME - 26 DAYS, 4 HOURS

## B. Prison Industry Operations

### 1. Evaluation Methodology

There are several objectives of the industrial activities of the Free Venture Shops. These can be divided into (a) conventional financial objectives of business enterprises, (b) specific objectives relating to contributions to the state and the institution in which they are located, and (c) objectives relating to the training of inmates with respect to good work habits and transferable job skills. The methodology by which the prison industry operations can be evaluated is rather straightforward.

#### Conventional Measures of Effectiveness of Business Enterprises

The evaluation of prison industries as a business enterprise will focus on the following specific measures of effectiveness:

- sales level and growth rate,
- profitability levels and growth rate,
- employment level and growth rate.

#### Objectives Relative to the State and Institution

The specific measures of effectiveness that will be used to evaluate the contribution of the prison industry to the state and institution are the following:

- annual savings to state agencies;
- annual contributions to the institutional chargebac fund which are devoted to institutional purposes including industrial expansion;
- accumulated manhours of inmate labor.

### Objectives Relative to Inmate Workers

The measures of effectiveness we propose for the evaluation of inmate related objectives of prison industry are the following:

- distribution of skills development of industry work force on an annual basis;
- average annual inmate earnings by skill level;
- job placement success rate.

### 2. Evaluation Instruments

No specific instruments need be developed by ECON, Inc. to measure the business performance of prison industry operations. The data collection procedures required to evaluate the degree of achievement of the typical business objectives are readily obtained from a conventional cost accounting system. With regard to prison industries contribution to the state and the prison, the data needed to quantify the annual savings to state and public agencies from the sale of prison made products are readily computed from accounting data, by examining industries' sales level by product line and multiplying the annual sales level of each product line by the average price reduction from the open market price which industry provides to its state-use clients. Also, the annual contributions to the institutional chargeback fund, which are devoted to institutional purposes, are readily computed by subtracting from the total annual accumulated chargeback those expenses related to job placement and post-release support services and the gate money payments. Finally, collection instruments are not needed for measuring data on the accumulated manhours of labor per worker as this information should readily be available from Correctional Industries accounting system.

With regard to prison industries contribution to the inmate worker, instruments will be needed to measure the progress of work skills developed by the inmate workers during each year of their employment with prison industry. Earlier in this report, we recommended that written tests be administered to all incoming workers in the Free Venture shops and re-administered at the end of each work year, at which time an on-the-job performance assessment would also be made by an independent expert in the area of vocational education and production efficiency. The selection of the appropriate written tests and the scheduling of the activities of the independent expert should be one of the specific tasks for the implementation phase of this industry program. Instruments will not be needed to measure the average inmate earnings by skill level as this will be available from the accounting system. The job placement success rate will easily be compiled from the post-release performance instruments described later.

### 3. Feasibility Study of Data Collection Effort

Under the assumption that our earlier recommendation for a complete redesign and implementation of a comprehensive accounting system for Correctional Industries will be implemented the feasibility of most of the data collection required to evaluate the prison industry operations is beyond question. The only information which will not be available through the new accounting system will be the growth in inmate work skills. However, a number of data collection instruments are available to develop the necessary data, and there is no doubt that the requisite data can be obtained. The only issue in question is which specific instruments will be selected for measuring growth in work skills among the inmate labor force of the several shops.

## C. Post-Release Activity Analysis

### 1. Evaluation Methodology

ECON, Inc. has developed a model of Connecticut ex-offenders' post-release activity. This model provides a methodology to estimate the economic benefits that will accrue if post-release performance of ex-offenders improves as a result of better training and work experience during their period of incarceration. By determining the change in post-release behavior and the corresponding economic benefits that accrue therefrom, the state may assign economically justifiable monetary incentives to stimulate the growth of a successful prison industry program.

*It must be emphasized that the activity model is not intended for use in estimating the total costs of criminal activity in the State of Connecticut*. Rather, it is to estimate the *change* in costs and benefits that result from changes in the post-release performance of ex-offenders. The change may be measured by comparing the difference in post-release performances between the target group (ex-prison industry workers) and a comparable group of male ex-offenders who did not participate in the prison industry work program.

Figure V-1 contains a flow diagram that illustrates the various ex-offender activities that will have cost and economic impacts. These include employment, welfare, some post-release service, or a combination of the three. As long as an ex-offender is employed, he is generating revenue and contributing to national income--an economic benefit. Otherwise, the ex-offender creates a social burden in the form of a transfer payment from productive workers to the ex-offender. If he commits a new crime and is rearrested, he creates additional costs. To start with, crime imposes an immediate cost on society. There may be personal injury or property damage. The magnitude of this cost depends, of course, on the nature of the crime.[1] If the criminal is summoned or arrested, the state government bears the police costs and a major portion of the costs associated with the trial. The remaining costs are usually borne by local governments. If the criminal is found guilty, he may be placed under probation, in which case the state bears the associated expenses, or he may be incarcerated, in which

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[1] Not all "costs of crimes" are "economic costs". Some, such as the losses of stolen property, are largely transfer payments from the victim to others.

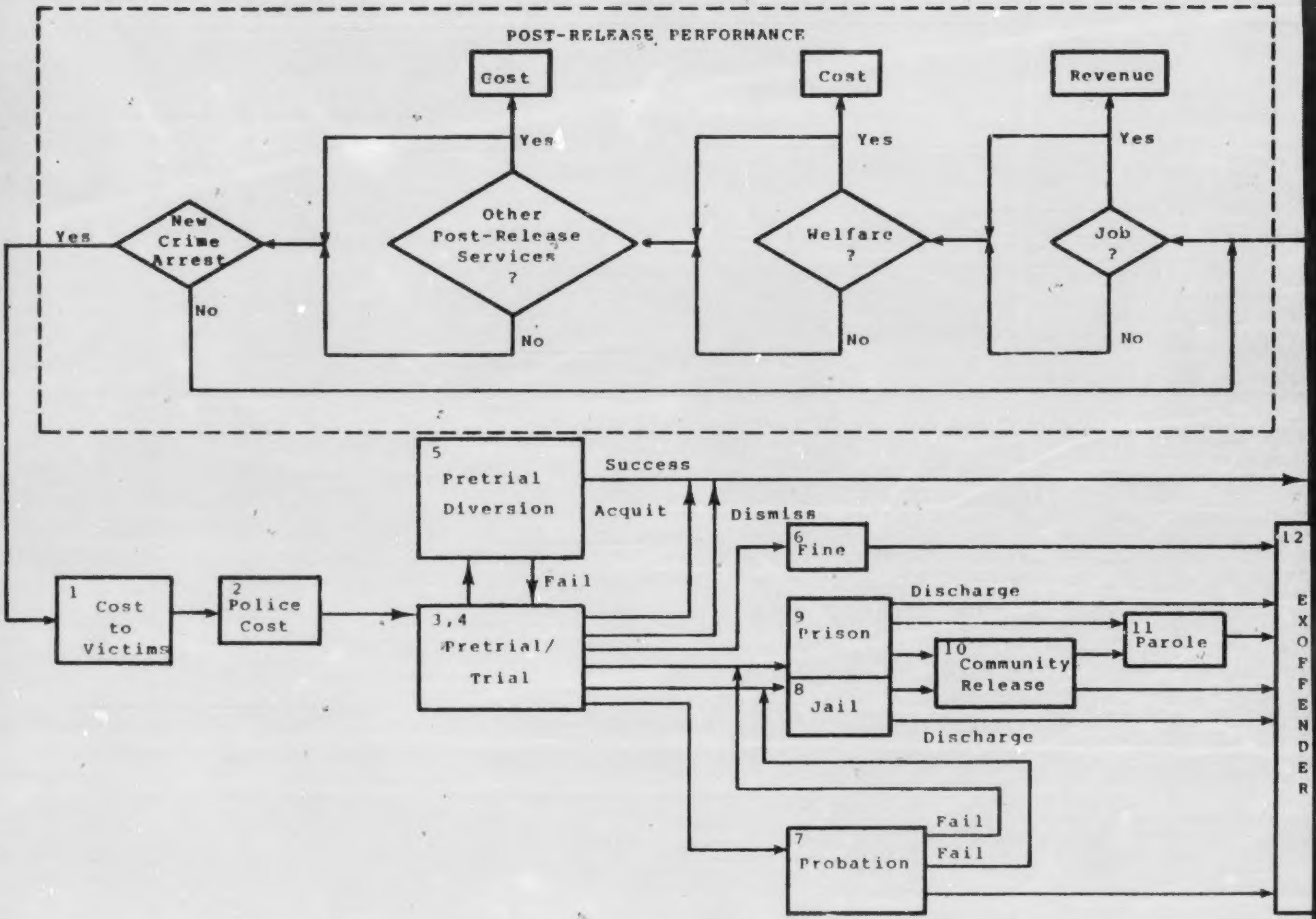
POST-RELEASE PERFORMANCE
Cost
Cost
Revenue
Yes
Yes
Yes
New Crime Arrest
Other Post-Release Services ?
Welfare ?
Job ?
Yes
No
No
No
No
5 Pretrial Diversion
Success
Acquit
Dismiss
Fail
1 Cost to Victims
2 Police Cost
3,4 Pretrial/ Trial
6 Fine
Discharge
9 Prison
10 Community Release
11 Parole
8 Jail
Discharge
7 Probation
Fail
Fail
12
EXOFFENDER

Figure V-1 Activity Model for Post-Release Performance

case the state--specifically, the Department of Correction--incurs the associated expenses during his stay in the correctional institution as well as during parole.

The magnitude of the costs will vary with the nature of the crime. Following FBI classifications, the crimes considered in this study are categorized as: Murder, Rape, Robbery, Assault, Burglary, Larceny-theft, Auto theft and others.

Increased economic benefits will be realized by society if the ex-offender:

1. is employed more readily (reduced lag before job placement);
2. earns higher wages;
3. maintains his employment status longer;
4. commits a new crime less frequently; or
5. commits a lesser crime or technical violation of probation or parole that causes fewer subsequent expenses.

Notably absent from the list of economic benefits and costs is the impact of prison industry programs on welfare payments. Clearly, to the extent that an ex-offender is working, the need for financial assistance is reduced. This, however, is not an economic benefit. The test of whether an activity is economic is whether the national income would be reduced if it were ended.[2] In the case of the cessation of welfare payments, the national income would not be reduced since the welfare funds could be allocated (spent, saved) by those who earned them or by the state for some other purpose.

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[2] Although this might seem to suggest that all government spending is uneconomic, this is not the case. Earlier it was argued that the provision of certain goods and services on a collective basis is preferred. In most of these cases, there are economic justifications; in some cases justification is based in political preferences.

The basic activity model given in Figure V-1 may be used for an economic evaluation of the post-release performance of ex-offenders. Two broad categories of economic benefits are derived from the above listing. The first category concerns benefits that accrue from the ex-offender's employment experience. His wage is a direct measure of contribution to national income, and, as such, is an economic benefit. The second category pertains to avoidance of costs associated with reduced crime rates, frequency of crime and/or severity of renewed criminal behavior on the part of the recidivating ex-offender.

In the process of actually measuring the economic benefits of improved post-release performance in a controlled experiment, the noncriminal behavioral aspects are most conducive to measurement, particularly when the ex-offender is under some form of post-release supervision. Instruments for recording these data are outlined in Section C-2. The benefits associated with reduced rates of renewed criminal activity can only be measured where those activities result in arrest, conviction or parole revocation.

For assessment of the cost impacts of reduced recidivism, there are reasons for using estimates rather than recording actual costs on an individual basis. First, criminal justice processing costs are difficult to attribute on an individual basis, and the results are subject to wider variation than a statistically average cost estimate. Second, the manpower required to assign individual processing costs to each recidivist would be too large to be practical. Third, a substantial amount of information on the aggregate costs of crimial justice processing is already available.

At the same time, we acknowledge that there are some disadvantages in the approach we have chosen to estimate the costs associated with recidivism. First, the cost estimation procedure very likely leads to an understatement of costs due to the fact that ECON, Inc. has chosen to omit those cost elements which could not readily be substantiated. Second, available statistical data are not specific to male recidivists, but include new offenders, women offenders, etc., as well.

### Benefit/Cost Analysis of Prison Industry Contribution to Post Release Success

One must determine whether the economic benefits associated with prison industry investments exceed the economic cost of these investments. Economic benefits are derived from four sources: (1) income of the ex-offender, (2) reduced criminal justice costs due to reduced recidivism, (3) the cost savings to the state due to the purchase of prison industry products, and (4) the wages to inmates and profits of prison industries. The economic costs of the program are the state's funds that are invested in facilities, personnel, equipment, etc. If the present value of the benefits equals or exceeds the present value of the costs, that is, the net present value is non-negative, then the program is economically justifiable.

## Measuring the Economic Benefits of Noncriminal Behavior

As long as the ex-offender leads a noncriminal life, he usually has at least one of the following means of sustenance:

1. employment,
2. welfare,
3. various post-release services.

These items are contained within the dotted box in Figure V-1. If he is employed, his wage is a measure of the direct benefit of the value of his labor to society. In order to compute the benefits generated by the ex-offender over the period that he leads a noncriminal life, the following data will be gathered for each ex-offender under study:

1. period (s) during which ex-offender is legally employed,
2. earnings record.

In order to estimate the impact of the prison industry programs on welfare payments and other programs, the following data will be collected simultaneously:

a. date (s) and amount of welfare assistance and unemployment benefits received;

b. programs undertaken for the increase of earning potential (e.g., education, training, etc.);

c. period (s) during which other post-release services were rendered and the cost of these services on a per capita basis;

d. probability that an ex-offender will successfully complete the post-release programs; and

e. probability of employment and typical earning stream expected after successful completion of the post-release programs.

The Department of Corrections does not keep as detailed a record of ex-offender activities as is indicated above. However, for evaluation purposes, a sample of ex-offenders will be monitored, and the above information gathered as part of a monthly follow-up effort. This effort is described fully in Section C-2. The two probabilities mentioned in (d) and (e) above can be established from agency placement reports and job market studies.

As long as the ex-offender is on parole, the above data can be easily gathered. However, data collection will be more difficult for ex-offenders who are not under parole supervision. Monthly information for these few individuals will be collected either through written correspondence or by personal interviews.[3]

Cost Estimation of Criminal Behavior

Upon the occurence of an arrest (see Figure V-1), the model assigns a certain expected cost for the criminal justice system expense associated with that arrest. Cost measures are based on "average variable cost." Average variable cost will serve as a proxy for marginal cost.

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[3] Though this process will be difficult, it has been used satisfactorily by Abt. Associates in their evolution of MDTA training programs, see "An Evaluation of the Training Provided in Correctional Institutions under the MDTA, Section 251" Abt, Associates, 1971.

The various costs incorporated in the model that are associated with the arrest are listed below:

- direct cost of crime
- police cost
- pre-trial/trial processing cost
- pre-trial diversion cost[4]
- amount of fine (which is a direct benefit to the state)
- probation cost
- prison/jail cost
- community release cost
- parole cost.

These items are accounted for in the various processes of the lower portion of Figure V-1. The same principle of costing can be applied to each process. This approach is based on the following steps:

1. enumeration of all the possible outcomes for an offender;
2. determination of the probabilities of the various outcomes from actual data;
3. establishment of the cost factors associated with each feasible outcome by understanding the relevant operation in detail.

For each stage of the criminal justice process we have calculated an expected cost per client, and a set of branching probabilities which indicate the likelihood of a person proceeding to any one of the next stages. Data for these steps have been differentiated, where possible, by the type of crime for which the ex-offender is arrested. Elements included in the cost calculations for each stage are outlined in Appendix B. This crime classification is based on the FBI index crimes, i.e., murder, rape, robbery, assault, burglary, larceny-theft, auto theft and other crimes. Overall expected costs per crime are then calculated as the weighted sum of all stage costs; the weights correspond to the probability of an arrestee going through the particular stage.

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[4] Not evaluated for reasons explained later in the text.

We assume that all arrests of the target group of ex-offenders will be recorded on the follow-up form. We measure the difference in costs between two groups from the point of arrest. No inferences relating to unsolved and/or unreported crimes are made. Since processing through the criminal justice system takes time, we have discounted the stage costs according to their position in the time sequence of events. In this model, two discount rates have been applied: a rate of 7 1/4 percent, based on recent industrial bond rates in Connecticut[5] and a 10 percent rate as is required by the U.S. Office of Management and Budget for the economic evaluations of Federal investment projects. Both rates are applied to costs that are expressed in constant 1974 dollars, with no account for inflation.

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[5] Communication with Gary Miller, Connecticut Department of Commerce, June 1976.

Finally, we should note that it has generally not been possible to collect data that reflect costs and probabilities associated specifically with recidivists. Thus, we were required to include first offenders in the average cost calculations. This will have the effect of introducing a conservative bias into the criminal justice system processing costs, as repeat offenders are less likely to be diverted earlier in the process and will therefore have higher processing costs. Also, the lack of sufficient data on detailed costs by type of crime has required the aggregation of stage costs over all crime types in many cases.

While the model is intended to be used in comparing the post-release experience of two or more groups of ex-offenders, Table V-5 presents the results of an application of the model to estimate the expected criminal justice processing costs given an arrest for various FBI index crimes.

In calculating these values, it was found that post-trial incarceration costs were the largest single cost item for each crime type, excluding auto theft. Therefore, the large bulk of calculated total variable costs[6] (from 52 percent for 'other' to 81 percent for 'murder') associated with renewed criminal activity are incurred directly by the Connecticut Department of Correction.

Note that the percentage contribution to the cost of crime that arises from post-trial incarceration significantly

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[6] Again excluding auto theft which has a large cost contribution from the stolen vehicles.

## Table V-5

## Expected Criminal Justice Processing Costs Given an Arrest[1]

| Crime | Cost Burden to Public | | Portion of Costs Borne by Dept. Correction | Portion for Post-Trial[2] Incarceration |
|---|---|---|---|---|
| Murder | $24,200 | (26,300) | 81% | 95% |
| Rape | 10,800 | (11,500) | 80% | 90% |
| Robbery | 5,300 | (5,500) | 75% | 79% |
| Assault | 2,000 | (2,000) | 70% | 66% |
| Burglary | 2,700 | (2,800) | 70% | 73% |
| Larceny-Theft | 1,400 | (1,400) | 64% | 55% |
| Auto Theft | 1,900 | (1,900) | 47% | 41% |
| Other | 250 | (250) | 52% | 43% |

---

[1] Average variable cost. Figures are discounted at a 10 percent percent rate; figures in parentheses are discounted at a 7 1/4 percent rate.

[2] Note that these costs include losses in productivity due to incarceration.

decreases with the decreasing severity of the type of crime. This fact is attributable to two major factors:

(a) the decreasing likelihood of conviction with decreasing levels of severity of crime type, and

(b) decreasing length of sentence given conviction as a function of decreasing level of severity of the crime.

Table V-6 illustrates the magnitude of the impact of these two factors. In comparing the post-release performance of two or more ex-offender groups, each recidivist will be tracked as far as possible through the criminal justice process, and costs will be assigned based on the path followed and the sentence received. Three definitions of recidivism will be used; vis, parole violation, arrest and conviction.

Expected costs per prison sentence (excluding loss of productivity) are shown in Table V-7.

### 2. Evaluation Instruments

To obtain the data needed to perform the post-release activity analyses described earlier, the post-release experience of a sample of ex-offenders must be monitored. Biographical background information, monthly post-release experience data, employer evaluation of the ex-offender, and ex-offender assessment of the prison industry program comprise the four components of this effort. Associated with each of the above is a follow-up instrument that outlines the relevant data needs. Draft forms for these instruments are provided in Appendix C.

The sample will be limited to those ex-offenders who have served a portion of their most recent sentence at Somers Correctional Institution. This sample will have two subgroups:

## Table V-6

### Expected Minimum Sentences (in months) and the Probability of Being Incarcerated by Type of Crime

| Type of Crime | Murder | Rape | Robbery | Assault | Burglary | Larceny | Auto Theft | Other |
|---|---|---|---|---|---|---|---|---|
| Number of Occurrences | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
| Estimated Number of Incarcerations | 46 | 6 | 2 | 4 | 0.8 | 0.5 | 0.5 | 0.6 |
| Expected Minimum Sentence (months) | 80 | 57 | 27 | 16 | 27 | 14 | 14 | 9 |

## Table V-7

## Average Variable Cost per Prison Sentenced Inmate, Discounted at a 10% (7.25%) Annual Rate (1974 Dollars)

| | Murder | Rape | Robbery | Assault | Burglary | Larceny-Theft Auto Theft | Other |
|---|---|---|---|---|---|---|---|
| Somers | 22,207<br>(23,749) | 16,212<br>(17,062) | 8,042<br>(8,298) | 4,392<br>(4,495) | 8,482<br>(8,760) | 3,920<br>(4,007) | 5,788<br>(5,942) |
| Enfield | 4,375<br>(5,074) | 3,829<br>(4,263) | 2,161<br>(2,287) | 1,332<br>(1,382) | 2,441<br>(2,592) | 1,342<br>(1,390) | 1,619<br>(1,692) |
| Jail | 475<br>(565) | 407<br>(462) | 251<br>(268) | 166<br>(173) | 264<br>(284) | 148<br>(154) | 199<br>(209) |
| Total[1] | 27,056<br>(29,388) | 20,448<br>(21,787) | 10,454<br>(10,853) | 5,890<br>(6,050) | 11,187<br>(11,636) | 5,410<br>(5,551) | 7,606<br>(7,843 |

[1] Typically, an inmate progresses from Somers to Enfield to a local jail before release to parole or discharge.

participants in the Free Venture industries program, and a control group consisting of a random sample of nonparticipant ex-offenders.

Biographical data will be collected on each offender in order to determine the factors correlated with post-release success and to determine whether differences in performance between the two groups are attributable to a "creaming" effect. This information will be gathered from the records of the Connecticut Department of Correction.

Monthly post-release experience data will be collected for parolees and, if possible, for any discharges that may be present in the sample. This effort will provide the primary source of information for the post-release activity model. A general description of the data that will be collected is given in Table V-8. The various sources of these data are outlined in Table V-9.

The employer interview form will provide information about the effectiveness of the Free Venture Model industries to the prison industry director. Responses will be collected from employers at the first place of at least two weeks' employment for each program participant in the sample. Since nonprogram ex-offenders may not inform their employers of their past history, the interview form will not be used with this group.

Another source of data on program effectiveness will be provided on a periodic basis by the program participants. Their assessment of the usefulness of their prison industry

## Table V-8 Brief Description of Monthly Post-Release Information

### Biographical

- Address and living expenses
- Marital status
- Number of dependents
- Education (including vocational) level
- Drug/alcohol abuse

### Welfare

- Payments to ex-offender and dependents
- Financial support other than welfare

### Special Programs

- Education
- Vocational training
- Drug/alcohol treatment
- Counseling/psychological programs
- Medical treatment

### Employment

- Employer and location
- Days worked
- Job type
- Income and taxes paid
- Placement rates and cost
- Job retention rates
- Job satisfaction

### Crime

- Arrests by crime*
- Prosecutions by crime
- Convictions by crime

*Burglary, robbery, rape, assault, murder, larceny-theft, auto theft, other.

Table V-9 Sources of Monthly Post-Release Information

| Area | Sources |
|---|---|
| Employment | Post-release interviews, parole officers, job placement agencies, Connecticut Department of Labor |
| Crime | National Criminal Information Center (FBI), Connecticut Department of Correction, State and local police, parole officers |
| Biographical | Post-release interviews, parole officers |
| Welfare | Post-release interviews, parole officers, Connecticut Department of Social Services |
| Special Programs | Post-release interviews, parole officers, program directors |

experience will be collected, using the interview form shown in Appendix C.

Together, these survey instruments will provide information that will be important in evaluating the success of the prison industry program in meeting its post-release performance goals.

### 3. Feasibility Study of Data Collection Effort

Data collection efforts by ECON, Inc. and its subcontractors during the initial phase of this study support the feasibility of the proposed post-release data collection efforts.

Biographical data have been collected successfully for several samples, using a form similar to that in Appendix C. There is little reason to expect much, if any, change in the difficulty of gathering this data.

While the parolee survey described earlier in Section I-D, did not require the detailed monthly information data collection effort now recommended, it did indicate that collection of additional data is feasible. ECON, Inc. and Department of Correction personnel who participated in the parolee survey feel that the new form does not present insurmountable problems, and that the information sought is indeed obtainable. While the number and detail of questions have increased considerably, the types of data to be collected and the appropriate data sources are comparable to those for the earlier survey.

An informal survey of 14 firms in the Hartford and New Haven areas revealed complete willingness on the part of employers to complete questionnaires of the type shown in Appendix C. The firms, which included printing, data processing, furniture making, optical, and dental shops, were supportive of an effort to monitor post-release activity; some employers contributed suggestions that have since been incorporated in the questionnaire. To insure the confidentiality of the ex-offender's record, these interviews will be conducted through on-site visits rather than by mail.

Finally, the ex-offender program evaluation instrument is similar to many questionnaires used to evaluate government manpower programs, most notably for various studies of MDTA programs. We, therefore, feel confident that this effort is a practical one.

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## APPENDIX A

## Inmate Questionnaire

Who are we?

We are from The American Foundation, Incorporated - a private corporation. We are looking at the correctional industries in Connecticut.

What is this for?

We want to know what you think about correctional industries at this institution. Do not sign your name. Your answers will be seen only by us.

1. How long have you been in this prison ______ Years Months

2. How long have you been working in a prison industry shop in this prison? ______ Years Months

3. What prison industry shops have you worked in this jail? ______

4. What is the prison industry shop you now work in? ______

5. How did you get into this prison industry shop? (Check one)

   ______ I was assigned here.
   ______ I requested this shop.
   ______ Correctional Industry Staff requested me.
   ______ Other ______

   If you checked "I requested this shop", what were the reasons you asked to be put in this prison industry shop?

   ______
   ______

6. How long have you worked in the shop you are now in? (Check one)

   ______ Less than three months
   ______ More than 3 months, less than 6 months
   ______ More than 6 months, less than 1 year
   ______ More than 1 year

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7. How did you get the job which you are now doing in this shop?

_____ I requested it.

_____ I was given it.

_____ The staff in the shop asked me to take it.

_____ Other ______________________________

If you checked "I requested it", why did you ask for the job? ______________________________

______________________________

8. How long have you worked at the job you now have in this shop? (check one)

_____ Less than 3 months

_____ More than 3 months, less than 6 months

_____ More than 6 months, less than 1 year

_____ More than 1 year

9. When you came into the prison industry shop, which person was the most helpful in showing you how to do your job?

_____ Foreman

_____ Another Inmate

_____ Other ______________________________

10. Which of the following best describe the prison industry staff who supervise you? (Check all that apply, if more than one applies)

_____ My foreman is only interested in getting the work done.

_____ My foreman really knows his job.

_____ Around here, you have to stay on the right side of the foreman or you really get hassled.

_____ My foreman takes time to see how I'm doing in my work and what kind of help I need.

_____ My foreman never listens to any of my ideas and suggestions.

_____ My foreman never makes any decisions on his own, just does what he is told.

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11. How would you rate the quality of instruction which you have received in the shop from your foreman? (Check one)

______ Good

______ Fair

______ Poor

______ I never got any instruction in the shop.

If you said that the instruction you received in the shop is "poor" or "fair", why do you think it is like that? (Check one)

______ There isn't any time for anything but work.

______ Foreman does not know enough to give good training.

______ No one cares.

______ Other ________________________________________

12. If you are able to give your opinion on how the shop should be run, do you offer your comments to: (check one)

______ Your supervisor

______ An Inmate Council

______ Other inmates in the shop

______ No one; my opinion is never considered to be important.

13. Check what you think are the three most important things in improving prison industries for the inmates working in them.

______ Vacation time and sick leave.

______ Better equipment

______ Industry jobs after release

______ Better pay

______ More/better vocational training

______ Better working conditions in the shop

______ Other ________________________________________

14. Do you feel you are receiving valuable training in terms of getting and holding down a job on the outside by working in the shop you are now in?

(Check one) ______Yes ______ No ______ I don't know.

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15. How much help will your job in prison industry be in getting a job when you get out? (Check one)

_____ It ought to be helpful.

_____ The job here is okay, but it will be hard to find the same kind of job on the outside when I get out.

_____ This job won't be any help at all.

_____ I intend to get a different kind of job.

16. What do you think is the greatest advantage to working in the shop you are now in. (Check one)

_____ Better chance for early parole.

_____ Better pay.

_____ Learning a job skill for a job after I get out.

_____ It's a good work assignment. (explain) ____

______________________________________________

______________________________________________

_____ More freedom to move around in the institution.

_____ Other (Explain) ____________________________

______________________________________________

17. Rate each statement below according to how important you think it should be. Put a #1 beside the one you think should be most important, a #2 beside the second most important, a #3 beside the third most important, A #4 beside the fourth most important, a #5 beside the fifth most important, and a #6 beside the sixth most important.

_____ Prison industry should develop in each inmate attitudes favorable to work.

_____ Prison industry should keep inmates' time filled.

_____ Prison industry should help inmates earn money to help out their families.

_____ Prison industry should work with other prison programs.

_____ Prison industry should give each inmate enough money to "tide him over" upon release until he finds a job.

_____ Prison industry should give each inmate a vocational skill.

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18 Other than working in the prison industry shop, what kind of education or vocational program would you like to take while you are in this institution?

______________________________________________

Why? __________________________________________

______________________________________________

______________________________________________

19. What kind of job did you have before you came to jail?

______________________________________________

20. How long were you working at this job before you came to jail? ______________________________

21. Before you came to jail this time, what was your working situation? (Check one)

_____ Employed - full time
_____ Employed - part time
_____ Odd jobs
_____ Unemployed
_____ In school

22. What kind of job do you want when you get out? _______

______________________________________________

23. What do you feel is most important about the job you will get after you get out? (Check one)

_____ Wages
_____ Security
_____ It should be full-time
_____ Other ______________________________

24. How old are you? _______________

25. What was the last grade you finished in school? _____

26. Check your marital status.

_____ Married (including common-law)
_____ Single
_____ Divorced/separated/widowed

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27. If there is something you think we should know about the shop you work in that we haven't asked, please tell us here.

________________________________________

________________________________________

________________________________________

________________________________________

________________________________________

THANK YOU!

## Appendix B

## Summary of Activity Analysis Cost Elements

This appendix describes the cost elements included in the calculation of criminal justice processing costs. It should be noted that the type of crime determines which stages of the criminal justice in the cost calculations activity model are included.

### Cost to Victims

- direct wealth of productivity losses to society as a result of the crime.[1] These may not all be economic costs in the strict sense, but transfers of wealth from the victim to the criminal and welfare gains (consumer surplus) to the recipient of stolen goods. Costs for non-economic crimes were not included in the analysis since reliable data were not available for these crimes.

### Police Processing

- pre-arraignment incarceration costs and personnel costs for police investigation, apprehension, and booking.

### Pre-Trial/Trial Processing

- incarceration costs for those not making bail, investigation costs, court time, counselor's time, jury costs, pre-sentence investigation, and loss of productivity of incarcerated clients.

---

[1] Based on 1974 F.B.I. Uniform Crime Reports, and on probability of conviction given arrest.

Cost for Pre-Trial Diversion

- according to the Connecticut Public Offenders' office, our target population of ex-felons would not be eligible for this program.

Fines

- as transfer payments, these amounts are not included as (negative) costs to the public.

Probabtion

- personnel costs depending on average time on parole and supervision costs.

Prison and Jail Costs

- variable incarceration costs and loss of productivity of incarcerant.

Community Release

- costs depending on program costs and average stay per client, reincarceration costs resulting from in-program failures.

Parole

- costs depending on average time on parole, supervision costs, probability of return to prison with no new sentence.

## APPENDIX C

### (1) BIOGRAPHICAL

### INMATE PROFILE DATA SHEET

Date in, current offense: ________

Institution ____________________

1. Current Offense: ______________________________

2. Present Sentence:
   - Indeterminate ____________
   - Fixed ____________
   - Other ____________

3. Earliest Parole Eligibility Date: ____________________

3a. Maximum Date: ______________

4. Date of Birth: ______________

5. Race: W B Spa A.I. Other ____________

6. Marital Status: S M D/S/W

7. I.Q.: Below average_____ Average_____Above Average_____

8. Highest Grade Completed: _________

9. Educational Test Results: ____________________

10. Number of Dependents: _______

11. Latest Residence Before Incarceration (town) _________

12. Age at First Conviction: _________

13. Jobs Before Incarceration: ____________________
    (Employed at time of arrest?)
    ________________________________________

**Ratio of total time in prison to present age ____________

14. Previous Convictions: From Most Recent (take at most four)

| Date | Offense | Disposition |
|---|---|---|
| | | |
| | | |
| | | |
| | | |

15a.

| Date in | Work Assignment | Skill Level Achieved (0=none; 1=entry 2=better) |
|---|---|---|
| | | |
| | | |
| | | |

15b. Institutional Assignments:

(a) Work (see 15a above) ____________________

optional

(b) School ____________________

(c) Vocational Programs (fill in under 15a) ____________________

(d) Counseling ____________________

(e) Other ____________________

16. Institutional Adjustments:

optional

(a) Work — Good ______ Average ______ Poor ______

(b) School — Good ______ Average ______ Poor ______

(c) Other ____________________ — Good ______ Average ______ Poor ______

17. Disciplinary Reports: Number ______

optional

| Reasons | Dispositions |
|---|---|
| | |
| | |
| | |
| | |
| | |

## (2) MONTHLY FOLLOW-UP INSTRUMENT

Name ______________________ No. ____________ P.O. ____________ Date ____________

Address ________________________________ ☐ Same as Last Month

**Biographical**

**Living With** ☐ husband or wife ☐ children ☐ parents ☐ other relatives ☐ friends ☐ halfway house ☐ alone ☐ other ☐ urgent problem

**Number of Dependents** ☐ none ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐ 8 +

**Marital Status** ☐ single ☐ married ☐ divorced or separated ☐ widowed

**Health** ☐ no problems ☐ drug abuse ☐ alcohol abuse ☐ other health problems ☐ urgent problem

**Education Level** ☐ unchanged ☐ new level ____________

**Vocational Level** ☐ unchanged ☐ new skills or position ____________

**Welfare**

**Non-Job Income Sources** ☐ none ☐ city welfare ☐ AFDC (State) ☐ other welfare ☐ unemployment insurance ☐ other ____________ (describe)

Total Amount This Month $________

☐ urgent problem

**Special Programs**

**Program Participation**

| education | vocational training | drug/alcohol treatment | counseling/psychological | medical |
|---|---|---|---|---|
| ☐ full-time | ☐ full-time | ☐ full-time | ☐ full-time | ☐ full-time |
| ☐ part-time | ☐ part-time | ☐ part-time | ☐ part-time | ☐ part-time |

Program Title(s) ________________________

**Employment**

**Current Status** ☐ employed ☐ unemployed seeking job ☐ unemployed, not seeking job, for this reason: ☐ involved in special program ☐ health reasons ☐ other ____________

**If Seeking a Job** ☐ job placement services contacted this month ____________ list agency ____________ list agency ____________ list agency

**Current Employer & Address** ________________________ ☐ Same as Last Month

**Job Title and Duties** ________________________ ☐ Same as Last Month

**Placed in Job by** ☐ State Employment Service ☐ other placement ☐ self

**Job Status** ☐ full-time ☐ part-time

**Weeks Worked This Month** ☐ 0 ☐ 1 ☐ 2 ☐ 3 ☐ full mo.

**Skills for Current Job Gained** ☐ in prison vocational education ☐ in prison industry shop ☐ before prison ☐ since release ☐ on the job ☐ no skills needed

**Job Income This Month** Gross Amount ________ ☐ $0-100 ☐ $101-200 ☐ $201-300 ☐ $301-400 ☐ $401-500 ☐ $501-600 ☐ $601 +

**Job Satisfaction**

| Salary | Transportation to work | Supervisors | Co-workers | Performance recognition/ advancement potential | Work rate | Job security | Overall | Same as Last Month |
|---|---|---|---|---|---|---|---|---|
| ☐ good | ☐ good | ☐ good | ☐ good | ☐ good | ☐ too fast | ☐ good | ☐ good | ☐ |
| ☐ fair | ☐ fair | ☐ fair | ☐ fair | ☐ fair | ☐ O.K. | ☐ fair | ☐ fair | |
| ☐ poor | ☐ poor | ☐ poor | ☐ poor | ☐ poor | ☐ too slow | ☐ poor | ☐ poor | |

**Crime**

**Status** ☐ no problems ☐ failed to report ☐ absconder status ☐ new conviction ☐ return to prison ____________ (reason)

| | date | charge | # days held | dropped |
|---|---|---|---|---|
| **Arrests** | | | | |
| | | | | |
| | | | | |
| | | | | |

## (3) EMPLOYER FOLLOW-UP INSTRUMENT

____________________ 19_______
(date)

## DRAFT

## Employer Questionnaire

Any and All Responses Which you Will Give Will be Kept Strictly Confidential

Directions: Please complete ALL sections of this form, even if the employee no longer works for your firm. Your responses will in no way affect the employee.

1. Personal Information:

A. Employee Name ____________________________________
(last) (first) (middle)

B. Indicated Employer ______________________________
Address ______________________________

II. Employment Information: If the employee presently works for your firm, or has worked for your firm in the past, please have the supervisor most familiar with the work of the employee complete this questionnaire.

Supervisor Filling Out Form:

A. Name________________________ Date___________ 19 ___

B. Position ________________________________________

Employee Performance Assessment: Please indicate your satisfaction with the employee as compared to other workers in the same position. If the employee is the only individual employed by your firm, compare him with others who have held the same position in the past.

EMPLOYER FOLLOW-UP INSTRUMENT (Cont.)

1. Staring date of employment ______________.

2. Number of months employee has been with your firm________.

3. Original contact for job placement was made by: (check one)

☐ State Employment Service representative

☐ Private job placement agency

☐ Prison Industry Director or other department corrections personnel

☐ The employee himself

☐ Other (specify) ____________________________

4. In comparison with other workers in the same group, how would you evaluate the employee on each of the following characteristics:

| | above avg. | about avg. | below avg. |
|---|---|---|---|
| Quality of the employee's work | ☐ | ☐ | ☐ |
| Quantity of the employee's work | ☐ | ☐ | ☐ |
| Degree to which this employee possesses specific job-related knowledge important to success on this job | ☐ | ☐ | ☐ |
| Employee's basic reading, verbal, and mathematical skills | ☐ | ☐ | ☐ |
| Employee's willingness to accept responsibility | ☐ | ☐ | ☐ |
| Employee's puncturality | ☐ | ☐ | ☐ |
| Employee's attendance | ☐ | ☐ | ☐ |
| Employee's ability to work independently | ☐ | ☐ | ☐ |
| Employee's willingness to learn and improve himself | ☐ | ☐ | ☐ |
| Employee's cooperation with fellow workers | ☐ | ☐ | ☐ |
| Cooperation of fellow workers with employee | ☐ | ☐ | ☐ |
| Employee's cooperation with management | ☐ | ☐ | ☐ |
| Employee's compliance with company rules and policies | ☐ | ☐ | ☐ |

5. In comparison with other workers in the same group or position, how would you rate this employee's overall competency, proficiency, effectiveness, general work attitudes, and other factors contributing to his chances for success?

☐ In the top 25% (high)

☐ In the top 50%, but now within the top 25% (high average)

☐ In the bottom 50%, but now within the losest 25% (low average)

☐ In the lowest 25% (low)

(Optional)

6. On the basis of this employee's performance, would you be willing to hire additional ex-offenders? ________________

7. Further comments: ________________________________

______________________________________________

## (4) EX-OFFENDER PRISON INDUSTRY EVALUATION INSTRUMENT

1. Please indicate the Prison Industry Shop in which you worked the longest period of time and indicate how long you worked there:

_______________________Shop ____________Months of Employment

2. How did you get into the above Prison Industry Shop?

_________Was assigned

_________Requested it

_________Shop Supervisor requested me

_________Other - please explain:___________________

____________________________________________________________________

____________________________________________________________________

Training

3. Did you receive any classroom instruction as training for your Prison Industry job? __________yes ________no

4. Did you receive on-the-job training? _________yes _________no

5. If you received on-the-job training, who instructed you? (Check any that apply)

_________Special instructor

_________Supervisor

_________Fellow worker

6. Was the job training enough to prepare you for your Prison Industry Job? _________yes _________no

Please comment:________________________________________

________________________________________________________

________________________________________________________

7. Did you learn job skills new to you during job training for your Prison Industry Job? _________yes _________no

8. If you are working now, was the training you received for your Prison Industry Job useful to you in your present job? _________yes _________no

Work Experience

9. Were the methods used in the Prison Industry Shop for production up-to-date? _________yes _________no

If you answered No, please explain:______________________

________________________________________________________

________________________________________________________

10. Was the equipment you used in the Prison Industry Shop up-to-date?

_________yes _________no

If you answered No, please explain:______________________

________________________________________________________

________________________________________________________

11. Were the materials you worked with in the Prison Industry Shop of high quality? _________yes _________no

If you answered No, please explain:______________________

________________________________________________________

12. What features of the Prison Industry program do you think are helpful in preparing you for a job outside?

|  | Helpful | Little Help | No Help |
|---|---|---|---|
| Regular Hours | ________ | ________ | ________ |
| Regular Pay | ________ | ________ | ________ |
| Skill Training | ________ | ________ | ________ |
| On-the-job Experience | ________ | ________ | ________ |
| Supervisor's support | ________ | ________ | ________ |
| Job placement | ________ | ________ | ________ |

If there are other features of the program you think were helpful, please list them: ________________________________________

________________________________________________________

________________________________________________________

13. If you are working now, was the Prison Industry work experience good preparation for your present job?

________yes ________no

If you answered No, please explain: ______________________________

________________________________________________________

________________________________________________________

Job Placement

14. Did you get help in finding a job when you were released?

________yes ________no

15. What kinds of help did you receive? Please explain: __________

________________________________________________________

16. Did you get what you expected from the Prison Industry program?

________yes ________no

If you answered No, please explain:________________________________

________________________________________________________________

________________________________________________________________

17. What suggestions would you offer to improve the Correctional Industries program?________________________________

________________________________________________________________

________________________________________________________________

________________________________________________________________

## APPENDIX D

## PRODUCTION ANALYSIS PACKAGE

**Institution** Connecticut State Prison: Somers

**Date** 1/7/76

**Observer** Jeffrey T. Luftig

## Prison Industry Production Analysis Package

**Institution** Somers : Optical Laboratory

**Product(s)** Lens/Glasses

**Number of Primary Staff** 1

**Number of Supportive Staff** 0

**Product-Related Information**

**Costs**

**To Industry to Produce One Unit** (Glasses) Sphere: $1.71; Cylinder: $1.84

**To Consumer to Purchase One Unit** Sphere: $7.68; Cylinder: $9.12

**Hourly Wage to Worker** $1.00/Day .17/Hour

**Market**

**External** ______ **Internal** XX

**In-State** ______

**Out-State** ______

**Other Pertinent Information** If market can be developed, this facility has tremendous potential in terms of financial return. At the present time, major activity is primarily training as opposed to production. Great deal of inmate inactivity noted over the two week period in this area.

## Maintenance and Prison
## Industry Manpower
## Needs Assessment

### B. Services **

**Prison Maintenance Activity (Shop)** Optical Laboratory

**Type of Activity *** Lens and Glasses Production

**Hours to be Worked Each Day** 6 **(A)**

**Number of Work Days per Week** 5 **(B)**

**Number of Hours Worked per Day by Each Man** 3.0-3.5 **(Actual)** **(C)**

6+ **(Potential-JA)** **(C')**

**Number of Men Working in Activity per Day** 6 **(Actual)** **(D)**

9 **(Potential-JA)** **(D')**

*** - Indicate primary and secondary activity structure. Each secondary activity requires one needs assessment evaluation.**

**Weekly Manpower Required Under Present System:** 6

**Manpower Deficiency or Excess:** 3 (D'-D)

Weekly Manpower Required Under Adjusted System: 9

Weekly Potential Man-Hours Under Adjusted System: 270 (B x C' x D')

Present Weekly Man-Hour Deficiency: 165 (B x C' x D') - ( B x C x D)

** NOTE: This industry is concerned with the production of goods and products as opposed to the provision of services. Because of the nature of the operation, however (job lot vs. mass production), this format is more applicable to the optical laboratory than the 'products' format.

| Job Titles | Number | % | Skill Level* | No. of Available Machines minus no. of Workers |
|---|---|---|---|---|
| Mechanical Optician (3 yrs. Training)<br>Licensed Optician (4 yrs. Training) | 6 Trainees | 100% | S | +3 |

* U = Unskilled
SS = Semi-skilled
S = Skilled

## Production/Operations Survey

1. Materials

   1.1 Are the materials used generally the best choice for the product? Yes, in every case observed.

   1.2 Approximately what percentage of the materials used reach the initial operator damaged? 2%

   1.3 Are the materials of optimal shape, size, and weight when arriving at the initial operating position, or is precutting/forming needed? Precutting/preforming is an integral part of the production process.

2. Tools, Jigs, Fixtures

   2.1 General Condition

   _____ Poor _____ Fair _____ Good

   _____ Very Good __X__ Excellent

   2.2 Production Utilization of Jigs and Fixtures

   _____ None _____ Little Use _____ Some Use

   _____ Widespread Use __X__ Used Wherever Applicable

3. Sub-Assembly and Final Assembly Procedures

   3.1 Fastening Devices; Appropriateness

   _____ Antiquated

   _____ Usually Appropriate

   __X__ Up-To-Date

   3.2 Fastening Procedures

   _____ Antiquated

   _____ Usually Appropriate

   __X__ Up-To-Date

4. Packaging of Parts/Products NOT APPLICABLE

_____ Poor _____ Fair _____ Good _____ Excellent

5. Quality Control; Inspection, Testing, and Gage Control

5.1 Efforts

_____ None _____ Some _____ Adequate

__X__ More than Adequate

5.2 Adequacy

_____ Over 25% Average Part Rejection Rate

_____ 15-24% Average Part Rejection Rate

_____ 5-14% Average Part Rejection Rate

__X__ 0- 4% Average Part Rejection Rate

6. Production Planning and Control

6.1 Scheduling and Record Maintenance

_____ Inadequate __X__ Adequate __X__ More than Adequate

6.2 Activity and Manpower Assignments

_____ Poor; Overmanned Tasks Frequent

_____ Fair; Overmanned Tasks Infrequent

_____ Good; Usually No Overmanning

__X__ Excellent; No Waste of Manpower Observed

Note: Large amount of inactivity noted, but not transferred to work tasks.

6.3 Receiving/Shipping Records

_____ Virtually Nonexistent

__X__ Fair

_____ Good

_____ Excellent

7. Materials Handling

7.1 Types

X All Manual

_____ Mostly Manual, Some Automated

_____ Mostly Automated, Some Manual

_____ All Automated

7.2 Material Transportation; Distance

_____ Excessive Distances

_____ More than Appropriate

X Appropriate

7.3 Material/Part Containers

_____ Inadequate

_____ Somewhat Adequate

X Adequate

8. Inventories

8.1 Average Annual Finished Product Inventories ($) and % of Annual Sales $1500.00 50%

8.2 Raw Materials/Unfinished Product Inventories ($) and % of Annual Sales $1,000.00 50%

## 9. Plant Supervision

### 9.1 Supervisor Experience

_____ Poor

_____ Fair

_____ Good

__X__ Excellent

### 9.2 Supervisor Attitude

_____ Poor

_____ Fair

_____ Good

__X__ Excellent

### 9.3 Supervisor Knowledgeability

_____ Poor

_____ Fair

_____ Good

__X__ Excellent

## General Remarks and Observations

(1) Emphasis primarily on training, not production due to small market requirements.

(2) In the present program/industry, it is important to note that glasses can only be produced for those inmates who meet one of two requirements:

a) They must present the industry supervisor with a prescription for the glasses, or

b) They must be presenting a pair of glasses to be repaired/ have lens replaced.

This situation is due to the present State law which prevents the industry supervisor from actually examining and prescribing glasses himself. Thus, the only source of new work for this industry is the opticians who visit the institution periodically. Unfortunately, not much of this work is given to the prison industry; rather, it is channeled to outside agencies. Other state agencies, welfare and social services in particular, also do not employ the services of the prison optical laboratory; preferring instead to utilize civilian agencies. None of these patterns, it should be noted, exist because of the quality of work produced by this facility, which is as good or better than any civilian shop, at ½ of the cost to the consumer.

# Operations Analysis

## Equipment

**General: Equipment and Machinery**

| Division/Area | Type | Number | Status | Vintage* | Safety Guards |
|---|---|---|---|---|---|
| | 1. Diamond Bevel/ Edger(Auto.) | 1 | Op.** | 1 | |
| | 2. Hand Edger | 2 | Op. | 1 | |
| | 3. Drop Ball Tester | 1 | Op. | 1 | |
| | 4. Hardening Unit (Auto.) | 1 | Op. | 1 | |
| | 5. Reclaiming Tank | 1 | Op. | 1 | |
| | 6. Alloy Blocker | 1 | Op. | 1 | |
| | 7. Air Dryer | 2 | Op. | 1 | |
| | 8. Lap Truer | 1 | Op. | 1 | |
| | 9. Cylinder Machines | 2 | Op. | 1 | |
| | 10. | | | | |

SEE ADDENDUM I FOR ADDITIONAL LISING

*Years Old
**Op.: Operational

| Division/Area | Machine | Theoretical Production Capacity | Quantity Produced |
|---|---|---|---|
| SEE WORKER ANALYSIS | 1. | T = | Q = |
| | 2. | T = | Q = |
| | 3. | T = | Q = |

**Specific:** (Machine Efficiency = $\frac{100\,Q}{T}$)

## Environment

1. Lighting

1.1 Type ☐ Incandescent ☒ Flourescent

1.2 Adequacy ☐ Poor ☐ Fair ☐ Good ☒ Very Good ☒ Excellent

## ADDENDUM I

General: Equipment and Machinery (Continued)

| Type | Number | Status | Vintage | Safety Guards |
|---|---|---|---|---|
| 10. Sphere Machine (Auto.) | 1 | Op. | 1 | |
| 11. Roughing Pan | 1 | Op. | 1 | |
| 12. Mini Deblocker | 1 | Not Op. | 1 | |
| 13. Bench Grinder | 1 | Op. | 1 | |
| 14. Soldering Machine | 1 | Op. | 1 | |
| 15. Staking Machine | 1 | Op. | 1 | |
| 16. Frame Warmer | 1 | Op. | 1 | |
| 17. Lens Marker | 1 | Op. | 1 | |
| 18. Lensometer | 1 | Op. | 1 | |

**2. Heating**

____ Poor

X Good

X Excellent

**3. Ventilation**

____ Poor

X Good

X Excellent

**4. Unnecessary Non-equipment Hazards**

____ Many

____ Some

____ Few

X None Observed

General Remarks and Observations

(1) With present equipment, this facility has an extremely high productio capacity (see specific worker analysis for further documentation), with high potential for flexibility and especially financial return. It is estmated that this facility could charge for it's work ⅓ of what would be charged by civilian enterprises, and still make a 200% profit under present conditions.

(2) While the present capacity of this industry is 35-50 pairs of glasses per day, additional selected equipment would (a) increase the production capacity to approximately 90 pairs a day, and (b) allow for the production of types of glasses which, at the present time, cannot be generated in this facility. The recommended equipment, therefore, is:

2.1) 1-2 more edgers ($3,000-4500 ea.)
2.2) 2-4 cylinder machines to allow for compound producti
($2-3,000.00 each)
2.3) Approximately 280 Laps, and 90 Sphere tools
(Approximately $500.00 total)
2.4) Additional (larger) hardening unit ($5,000.00)

(3) Even with the added equipment as listed above, it should be noted that the most pressing problem is the lack of work given to this industry.

**Worker/Labor Analysis**

(General)

**Worker:** All (with the exception of 1 new worker)

| Variable | Category | 0 | 1 | 2 | 3 | 4 | Remarks |
|---|---|---|---|---|---|---|---|
| | | | | Performance | | | |
| Quality of Work | Accuracy 1 | Very Careless | Careless | Normal Errors | Usually Accurate | Very Exact 5 | $\overline{X} = 4$ |
| | Neatness 2 | Slovently | Untidy | Adequate | Neat | Very Neat 5 | $\overline{X} = 4$ |
| Volume of Work | Volume Produced 3 | Very Low Output | Below Standard | Required Amt. 2 | Occassionally High | High Quantity 3 | $\overline{X} = 3.2$ |
| Job-Related Knowledge | Basic Knowledge (starting) 4 | Needs Training Badly 5 | Weak | Adequate | Well Informed | Excellent | $\overline{X} = 0$ |
| | Equipment 5 | Needs Supervision | Partial Knowledge | Sufficient | Can Operate Well 2 | Knows & Can Repair 3 | $\overline{X} = 3.6$ |
| | Flexibility 6 | Extremely Ltd. | Limited | Skilled in Present Job | Skilled in a Few Jobs | Skilled in Many Jobs 5 | $\overline{X} = 4$ |
| Job-Related Attitudes | Work-Related 7 | Poor | Fair | Good | Very Good | Excellent 5 | $\overline{X} = 4$ |
| | Authority 8 | Poor | Fair | Good | Very Good | Excellent 5 | $\overline{X} = 4$ |
| Attendance | Punctuality 9 | Always Late | Late Irregularly | Usually on Time | On Time for Job | On Time for Everything 5 | $\overline{X} = 4$ |
| | Absence 10 | Habitually Absent | Frequently Absent | Occasional | Seldom | Never 5 | $\overline{X} = \cdot 4$ |
| Safety | Safety 11 | Hazard to Others | Few Accidents | Safe Worker | Safe and Safety Minded | Safe - Projects Others 5 | $\overline{X} = 4$ |
| Application of Job Skills to 'Outside' Demands | Transfer 12 | None | Little | Some | Much | Same 5 | $\overline{X} = 4$ |
| | Demand 13 | None | Little | Some | High | Very High 5 | $\overline{X} = 4$ |

Very high levels of motivation and excellent attitude noted among all workers in this facility. The inmate workers here were more than anxious to demonstrate their knowledge and competencies related to their jobs. The potential for skill transfer and the projected ability of these workers to locate work on the 'outside' is definitely excellent. All workers, incidentally, are screened by the school vocational director before entering the industry (GED is required). Supervisor thoroughness and enthusiasm are truly reflected in the inmates working in this industry.

## Worker/Labor Analysis (Specific)

Due to the nature of the type of work performed in this industry, as well as the automatic nature of much of the equipment, a specialized worker/equipment assessment was conducted to establish the worker efficiency level for this facility.

In this assessment, the workers produced one pair of glasses starting from the lens blanks, and ending with the completed (ground and polished) lens ready for insertion in the frames. It was estimated, prior to the production effort, that a standard time for the entire process was 30 minutes. The observed recorded time intervals, by stages as well as the total time recorded, are presented below.

| STAGE | RECORDED TIME | REJECTED/ACCEPTED |
|---|---|---|
| 1. Blocking | 3 minutes, 29 seconds | A |
| 2. Generator | 7 minutes, 6 seconds | A |
| 3. Trimming | 3 minutes, 3 seconds | A |
| 4. Polishing | 12 minutes, 46 seconds | A |
| 5. Edging/Beveling | 4 minutes, 40 seconds | A |

Total Recorded Time: 31 minutes, 4 seconds
Standard Time: 30 minutes

Calculated Efficiency Level: 96.44%

## OPTICAL LABORATORY

## Final Summary and Recommendations

### Production and Operations Analysis

At the present time, two major problems prevent the optical laboratory at Somers from operating in a completely efficient manner.

The first, explained in detail in a previous report (see Final Summary and Recommendations: Printing), is of institutional origin, and may be defined as a manpower scheduling and control problem. Because workers are permitted to leave the facility during the normal working day for any number of personal reasons ('rap sessions' haircuts, visits, commissary visits, etc.) without any loss of salary, and because the workers are housed in various blocks and therefore released at different times in the morning, a tremendous number of man-hours of labor are lost each week. The results of the manpower needs assessment (page 3) revealed that approximately 165 man-hours of production are lost weekly, which accounts for 61.11% of the potential work week. For these reasons, four specific recommendations are made:

(1) Shift the scheduled work day to the late afternoon/evening, or change the present institutional scheduling policies to disallow fragmented work periods.

(2) Install and utilize (for salary purposes) a time clock system in the facility.

(3) House all optical laboratory employees in a single cell block, so all may arrive and depart the facility at the same time.

(4) Increase the present work day to 7, or perferably 8, hours.

It should be noted that even if all of the changes were made, a second major problem still faces this industry: a very poor incoming work load. During this observer's stay at Somers, a tremendous amount of inactivity among the employees of this industry was noted. Glasses can only be produced in this laboratory if a previously-prepared prescription is presented, of if broken lens' need replacing. The number of broken glasses occuring within the institution, however, is very small. Additionally, opticians working for the state in Somers and other penal institutions, as well as agencies such as welfare and social services are not utilizing this industry for the production of new glasses. This is an extremely unfortunate situation, as this facility is capable of producing glasses of equal quality to civilian firms, while charging the consumer approximately half of what it might cost if purchased'on the street'. This market must be developed, and to do so the following recommendation is made:

> (5) The director of prison industries at Somers must initiate efforts in conjunction with the director of prison industries for the State of Connecticut to increase the market for the optical laboratory by encouraging State related prescriptions to be filled by the Somers facility.

In order to allow the facility to perform a greater diversity of work, as well as handle a greater work load, the following recommendation is made:

> (6) This industry should acquire the following tools and equipment:
>
> - 1-2 more edgers
> - 2-4 cylinder machines
> - 280 laps, and 90 sphere tools
> - A larger hardening unit

The total cost of this additional equipment would be approximately $20,000.00 . Even if no new equipment were purchased, however, it should be noted that the potential of this facility to become financially self-sufficient given an expanded market is greater than perhaps any other facility at Somers. This assertion is based upon the high production capacity of the present facility, as well as the potential for financial return. It is estimated that even if the products were to be sold at half the cost charged by civilian enterprises, the present industry (under present conditions) would still make a 200% profit. It is essential, therefore, that this industry's market be broadened.

The jigs, fixtures, and templates observed were in excellent condition, and used wherever applicable. Sub-assembly and final assembly procedures were consistently judged to be up-to-date. Quality control efforts were more than adequate, and the rejection rate was extremely low.

Scheduling and record maintenance was adequate to more than adequate. A tribute to the industry supervisor was that although a definite lack of work existed, no overmanning of job tasks was observed. Receiving and shipping records, maintained by the main industries office, were fair. All materials handling observed was manual in nature; transported distances were appropriate and handling containers were adequate.

Based upon the supervisor's experience and the impression given to this observer, the superviser's experience was evaluated as excellent, as was his attitude and knowledgeability.

With the exception of one piece of equipment, all of the machinery and equipment observed was operational and virtually brand new, based upon the general equipment analysis.

The lighting in this facility was flourescent in nature, and was assessed as being very good to excellent. Likewise, the heating and ventilation were found to be good to excellent, and no unnecessary non-equipment hazards were observed.

## General Worker/Labor Analysis

Results of the general worker analysis revealed extremely impressive data regarding the knowledge, skills, attitudes, and motivation of the workers. Although every worker needed training badly when first entering the facility, ten of twelve mean assessment levels were equal to 4.0, based upon the evaluation of the industry supervisor and the assessments of this observer. A complete profile of all workers assessed is presented on the following graph (Figure 1).

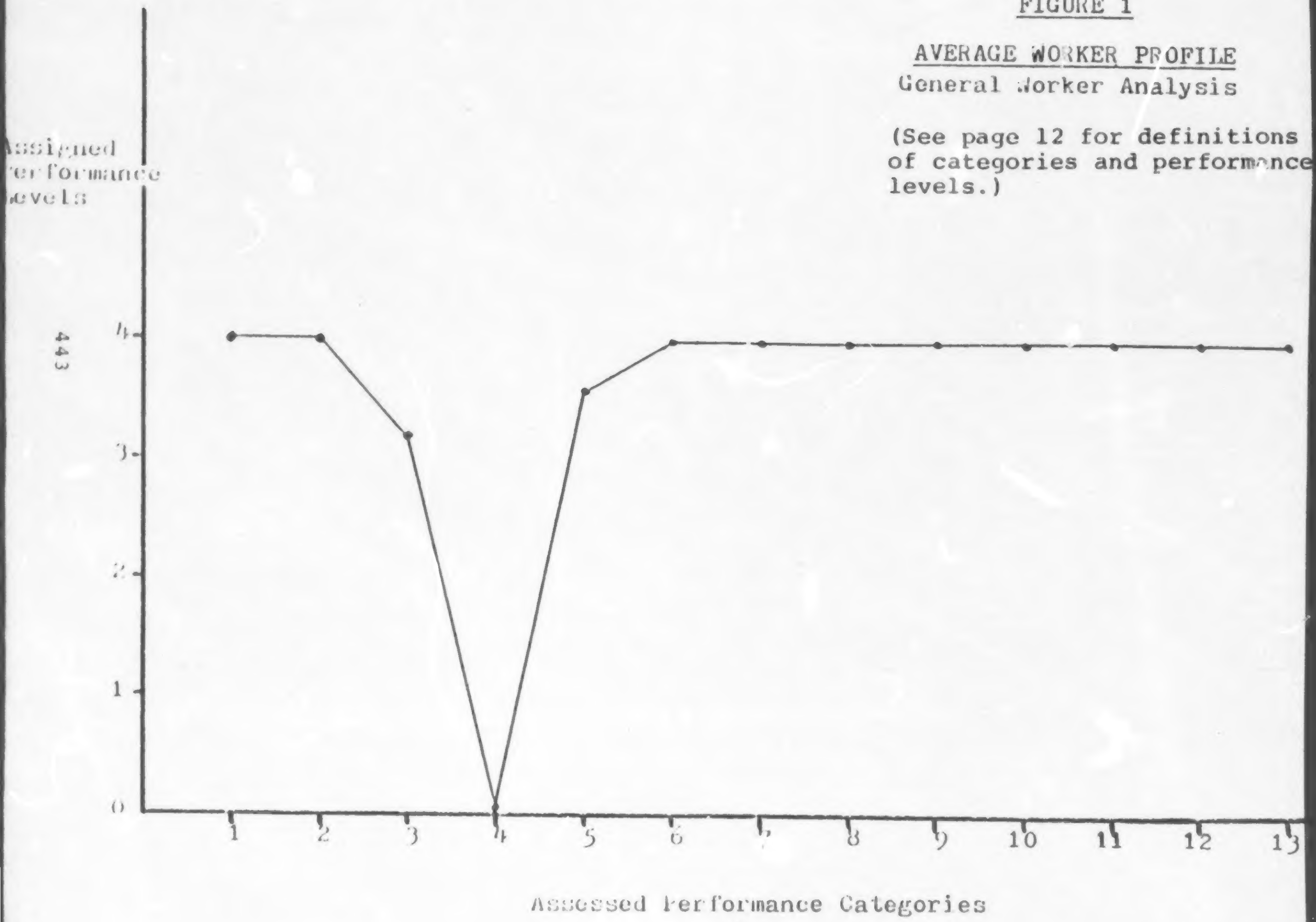

FIGURE 1

AVERAGE WORKER PROFILE

General Worker Analysis

(See page 12 for definitions of categories and performance levels.)

## Specific Worker/Labor Analysis

Results of the specific worker analysis reinforced earlier contentions related to the efficiency and skills of the present work force. Using 3-4 workers, the efficiency level of the work performed based upon a comparison of a standard time and the actual observed time was found to be 96.44%, extremely high for any industry, in or out of prison.

## Summary of Recommendations and Final Assessment

The recommendations proposed within the body of this report are as follows:

(1) Shift the scheduled work day to the late afternoon/evening, or change the present institutional scheduling policies to disallow fragmented work periods.

(2) Install and utilize (for salary purposes) a time clock system in the facility.

(3) House all optical laboratory employees in a single cell block, so all may arrive and depart the facility at the same time.

(4) Increase the present work day to 7, or perferably 8, hours.

(5) The director of the prison industries at Somers must initiate efforts in conjunction with the director of prison industries for the State of Connecticut to increase the market for the otical laboratory by forcing State-related prescriptions to be filled by the Somers facility.

(6) This industry should acquire the following tools and equipment:

- 1-2 more edgers
- 2-4 cylinder machines
- 280 laps, and 90 sphere tools
- A larger hardening unit

In summary, it is the opinion of this observer that of all the industries assessed at the Somers facility, this industry has the greatest potential for success under the Free Venture Model. This assertion is based upon the following factors:

- The knowledgeability, enthusiasm, and attitude of the supervisor.
- The present excellent state of the existing equipment.
- The proven competencies and attitudes of the present labor force.
- The potential for financial return (profit).
- The continuing State needs for the products generated by this industry.

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